L 12366-65 EWT(d) Pg-4 IJP(c)/ASD(d)/ESD(dp) MLK

ACCESSION NR: AT4047146 S/0000/64/000/000/0183/0191

AUTHOR: Vasil'yeva, A. B. (Moscow); Butuzov, V. F. (Moscow)

TITLE: Asymptotics of the solution of an integrodifferential equation with a small parameter multiplying the derivative

SOURCE: Chislenny*ye metody* resheniya differentsial'ny*kh i integral'ny*kh uravneniy i kvadraturny*ye formuly* (Numerical methods of solving differential and integral equations and quadrature formulas); sbornik statey. Moscow, Izd-vo Nauka, 1964, 183-191

TOPIC TAGS: integrodifferential equation, asymptotic solution, Cauchy problem

ABSTRACT: A study is made of the Cauchy problem for the integrodifferential equation

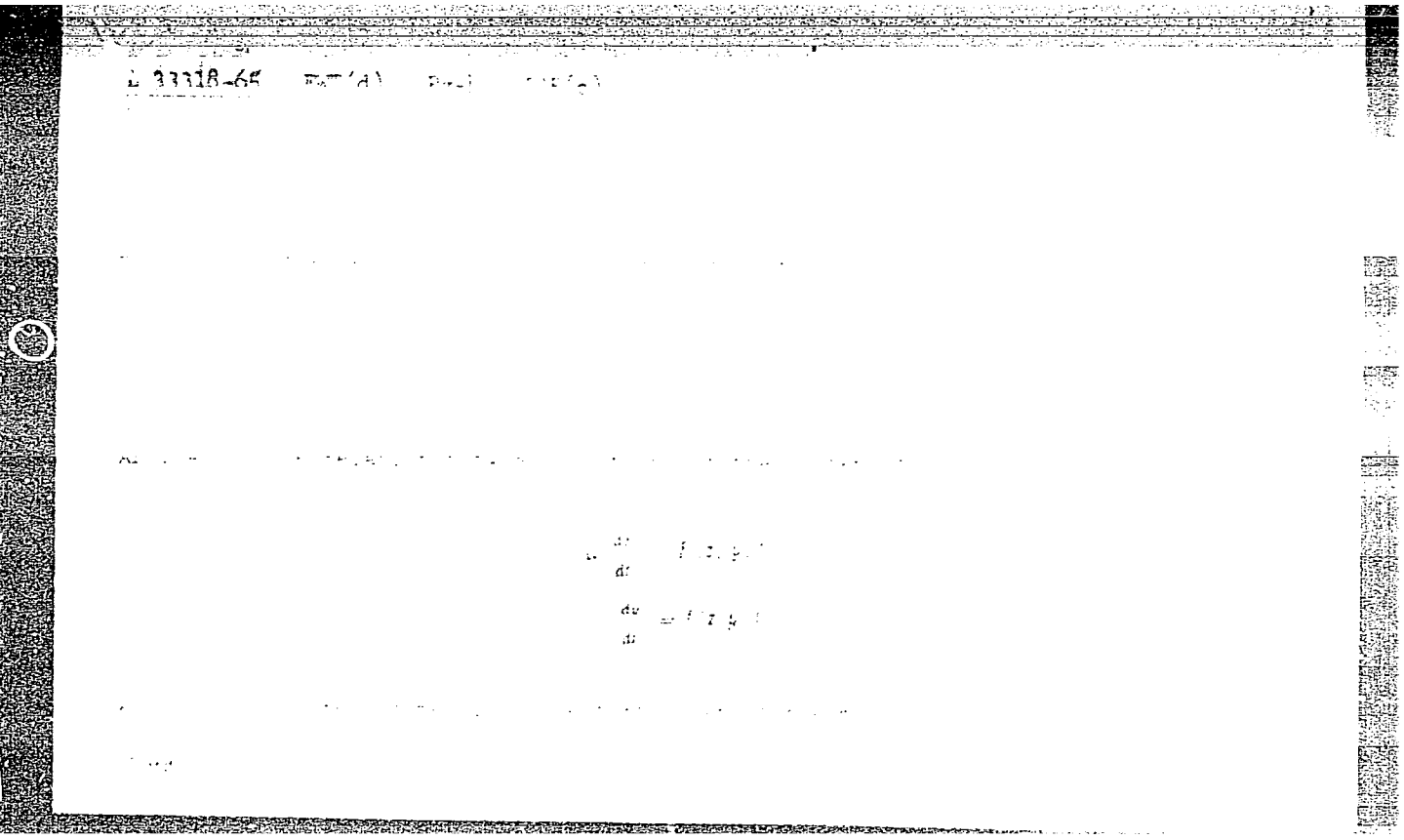
$$\mu\frac{dy}{dt} = F\left(y, \int_0^t K(t,x)y(x)dx, t\right), \quad y(0) = y^0, \qquad (1)$$

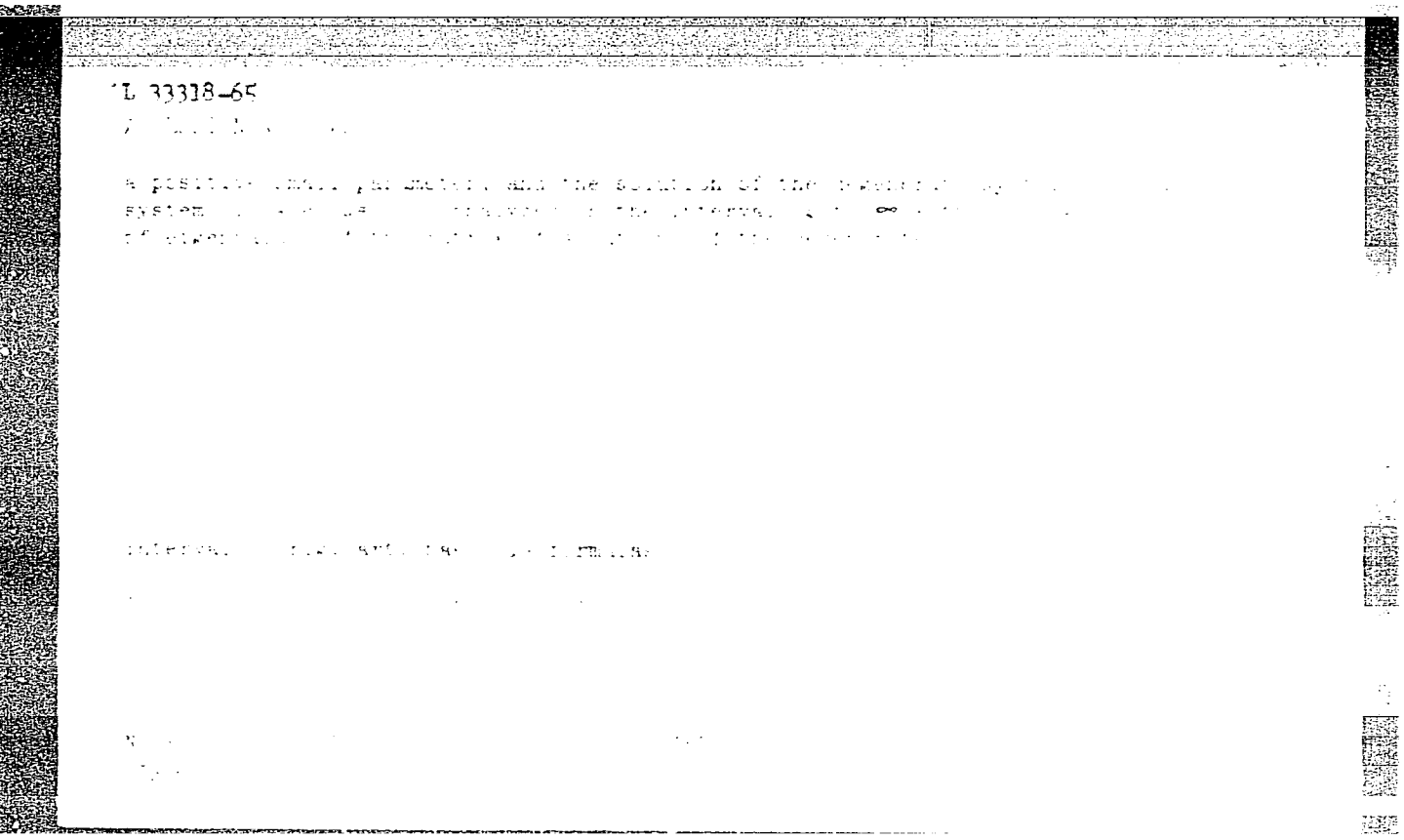
Card 1/2

where μ is a small parameter and an independent variable. Setting $\mu = 0$ in equation (1), a degenerate equation is obtained. Under the assumptions that solutions $y(t,\mu)$ of equation (1) and $\bar{y}_0(t)$ of the degenerate equation exist and satisfy certain conditions, it is proved that the passage to the limit

$$\lim_{\mu \to 0} y(t,\mu) = \bar{y}_0(t) \quad (0 \leqslant t \leqslant T) \qquad (2)$$

exists. Asymptotic formulas for the uniform approximation of $y(t,\mu)$ with arbitrary accuracy are constructed on the basis of methods developed previously by A. N. Tikhonov and A. B. Vasilyeva (Matematicheskiy sbornik, v. 22, no. 2, 1948, 193-204; v. 60, no. 1, 1960, 43-58; and Uspekhi matematicheskikh nauk, v. 18, no. 3, 1963, 15-86) for the solution of ordinary differential equations with a small parameter multiplying the derivative. These formulas are valid on the entire interval $0 \leqslant t \leqslant T$; that is, even in the neighborhood of the initial point $t = 0$, where the solution of the degenerate equation does not satisfy the initial condition of equation (1) and the boundary-layer phenomenon takes place. Orig. art. has: 17 formulas.





BUTUZOV, V.I.

BUTUZOV, V.I. (g. Yuzhno-Sakhalinsk).

A master of his work. Put' i put. khoz. no.1:17 Ja '58. (MIRA 11:1)
(Railroads--Employees)

BUTUZOV, V.I.

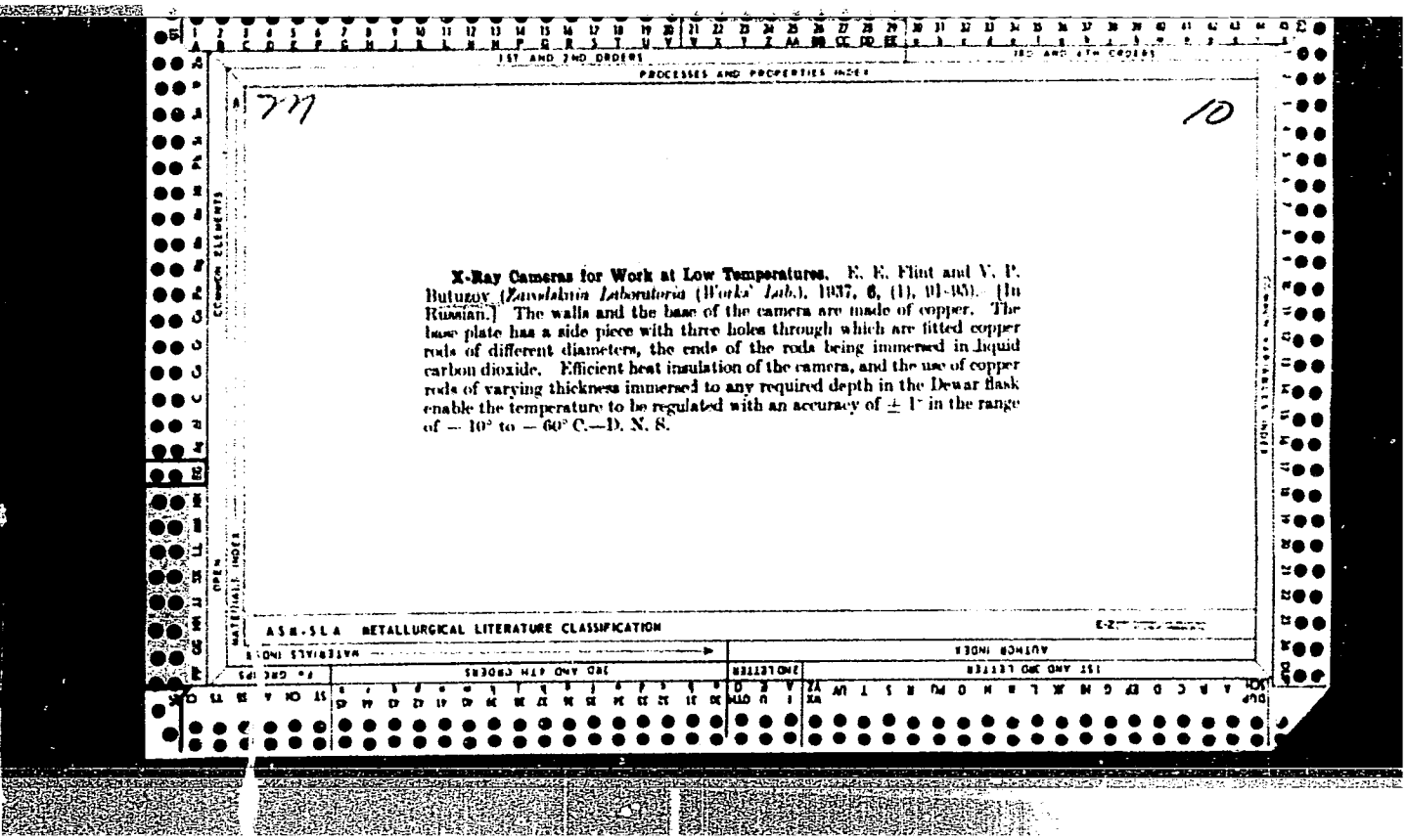
Efficiency promoters in railroad workshops. Put' i put. khoz. no.2: 29 F '58. (MIRA 11:3)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela sluzhby puti, g. Yuzhno-Sakhalinsk.
(Yuzhno-Sakhalinsk--Railroads--Equipment and supplies)

CA

The covalent radius of oxygen. V. P. Butuzov. *Doklady Akad. Nauk S.S.S.R.* 58, 1411–13(1947). *Chem. Zentr.* (Russian Zone Ed.) 1949, I, 655.—The covalent radii of the most important elements were first reported by Pauling and Huggins (cf. *C.A.* 28, 3629[9]). Corrected values, especially for F, N, and O, were reported by Schomaker and Stevenson (*C.A.* 35, 1278[9]). The latter report 0.74 A. (instead of 0.66 A.) for the covalent radius of O on the basis of measurements on H_2O_2. Bernal, *et al.* (*C.A.* 30, 2821[3]) report 0.64 A. based on measurements on BaO_2. This latter result is questioned and a new value of 0.735 A. is reported on the basis of measurements on H_2O_2.

M. G. Moore

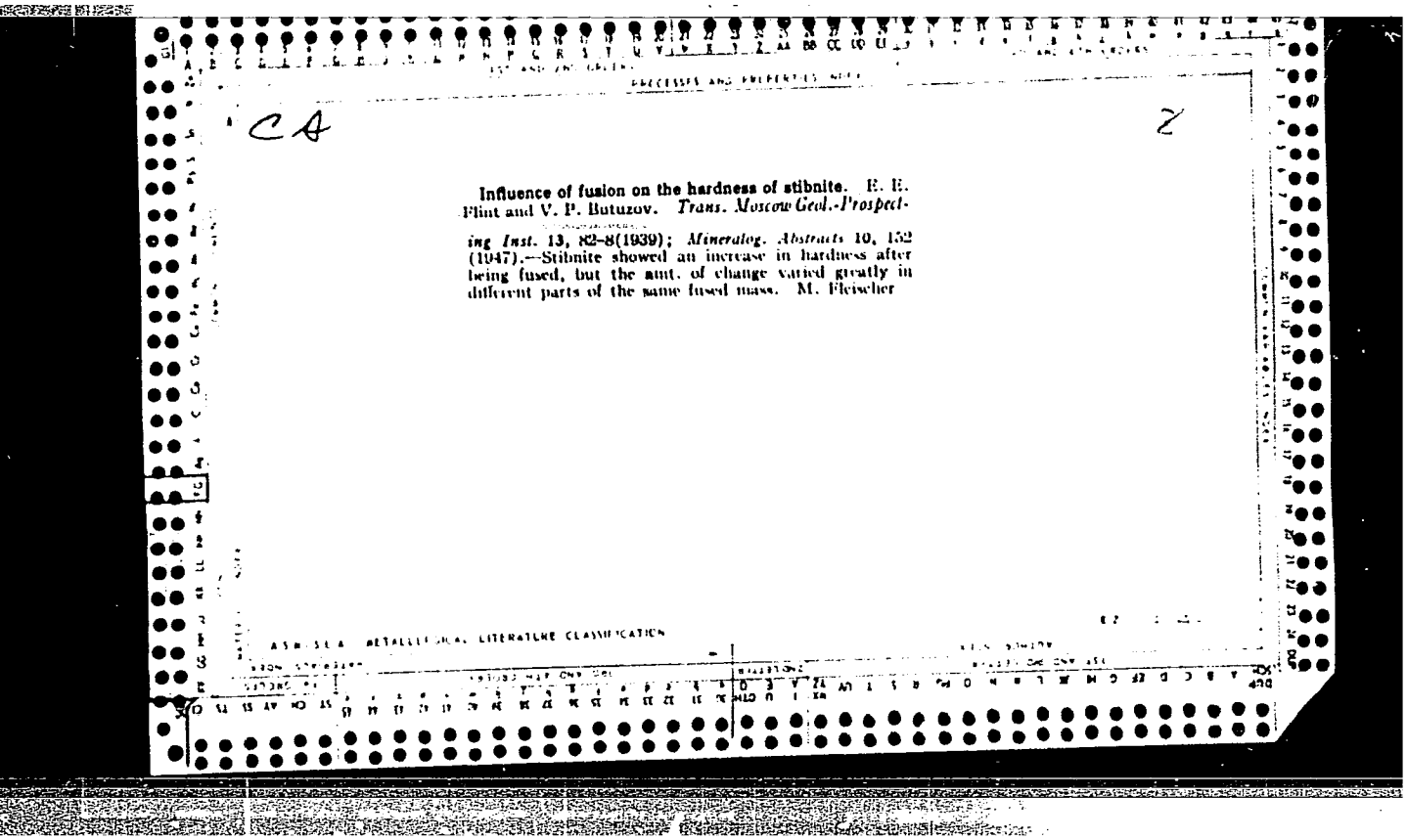


77

10

X-Ray Cameras for Work at Low Temperatures. E. E. Flint and V. P. Butuzov (*Zavodskaia Laboratoria* (*Works' Lab.*), 1937, **6**, (1), 91-93). [In Russian.] The walls and the base of the camera are made of copper. The base plate has a side piece with three holes through which are fitted copper rods of different diameters, the ends of the rods being immersed in liquid carbon dioxide. Efficient heat insulation of the camera, and the use of copper rods of varying thickness immersed to any required depth in the Dewar flask enable the temperature to be regulated with an accuracy of $\pm 1°$ in the range of $-10°$ to $-60°$ C.—D. N. S.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

2

Influence of fusion on the hardness of stibnite. E. E. Flint and V. P. Butuzov. *Trans. Moscow Geol.-Prospecting Inst.* 13, 82–8(1939); *Mineralog. Abstracts* 10, 152 (1947).—Stibnite showed an increase in hardness after being fused, but the amt. of change varied greatly in different parts of the same fused mass. M. Fleischer

BUTUZOV, V. P.

USSR/Nickel Mines and Mining
Mineral deposits

Apr 1947

"Polydymite from the Novo-Aydyrlinsky Deposit, South Urals," G. S. Gritsaenko, Yu. S. Nesterova, V. P. Butuzov, 7 pp

"Zap Vse Min Ob" Vol LXXV, No 4

Polydymite (Ni_4S_5) from the subject deposit of nickel ores is shown to be identical in all respects with standard polydymite from Gruenau, Westphalia.

PA 15T96

BUTUZOV, V. P.

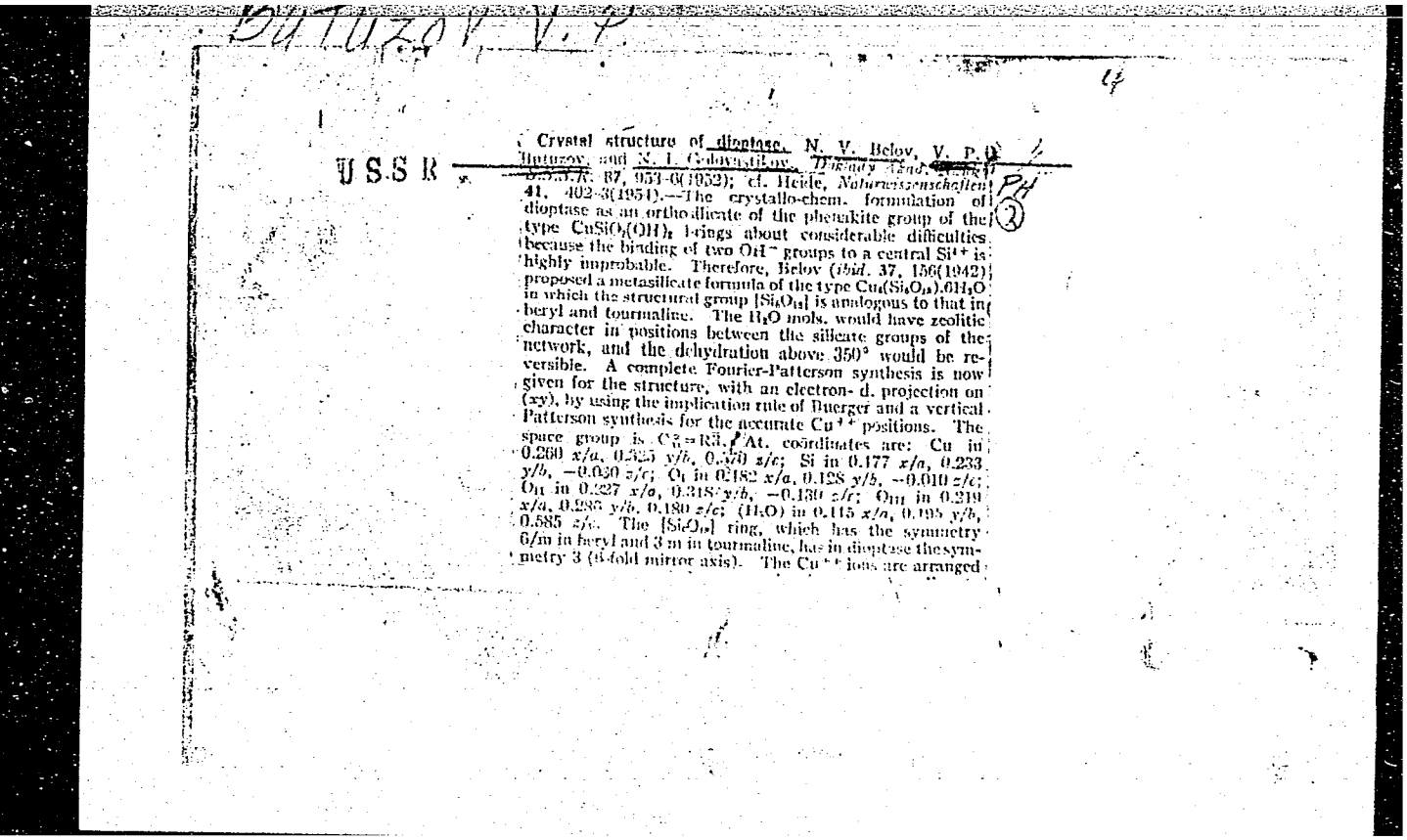
USSR/ Minerals - Nickel Mines Metallography Jan/Feb/Mar 50

"Aydyrlite From the Novo-Aydyrlinskiy Deposit in the Southern Urals," G. S. Gritsayenko Active Mem, Acad Sci USSR, N. Kh. Aydin'yan, V. P. Butuzov, Inst of Geol Sci, Inst of Cryst, Acad Sci USSR, 5 pp

"Zapiski v-s Mineral Obshch" No 1

Aydrlite, first described by M. N. Godlevskiy as new nickel aluminosilicate with formula $2\pm NiO \cdot 2\pm Al_2O_3 \cdot 3SiO_2 \cdot 7.5H_2O$, is actually a gel system, which may break down in crystallization into opal and a complex hydrate of nickel aluminate. Constancy of Debye's gram suggests that aydrylite is not a simple mechanical mixture of certain components but a definite compound requiring further study.

PA 157T71



DUTUZOV, V. P.

USSR

Crystal structure of dioptase. N. V. Belov, V. P. Butuzov, and N. I. Golovastikov. *Doklady Akad. Nauk S.S.S.R.* 87, 953-6(1952); cf. Heide, *Naturwissenschaften* 41, 402-3(1954).—The crystallo-chem. formulation of dioptase as an orthosilicate of the phenakite group of the type $CuSiO_2(OH)_2$ l-rings about considerable difficulties because the binding of two OH^- groups to a central Si^{++} is highly improbable. Therefore, Belov (*ibid.* 37, 156(1942)) proposed a metasilicate formula of the type $Cu(Si_6O_{18}).6H_2O$ in which the structural group $[Si_6O_{18}]$ is analogous to that in beryl and tourmaline. The H_2O mols. would have zeolitic character in positions between the silicate groups of the network, and the dehydration above 350° would be reversible. A complete Fourier-Patterson synthesis is now given for the structure, with an electron- d. projection on (xy), by using the implication rule of Buerger and a vertical Patterson synthesis for the accurate Cu^{++} positions. The space group is $C_{3i}^2 = R\bar{3}$. At. coordinates are: Cu in 0.260 x/a, 0.525 y/b, 0.370 z/c; Si in 0.177 x/a, 0.233 y/b, −0.030 z/c; O_I in 0.182 x/a, 0.128 y/b, −0.010 z/c; O_{II} in 0.227 x/a, 0.318 y/b, −0.130 z/c; O_{III} in 0.219 x/a, 0.286 y/b, 0.180 z/c; (H_2O) in 0.115 x/a, 0.195 y/b, 0.585 z/c. The $[Si_6O_{18}]$ ring, which has the symmetry 6/m in beryl and 3 m in tourmaline, has in dioptase the symmetry 3 (6-fold mirror axis). The Cu^{++} ions are arranged

in narrow "channels" between the rings corresponding to the pos. character of dioptase. At. distances: Cu − O_{II} = 2.07 A.; Cu − O_{III} = 1.97 A.; Cu − (H_2O) = 2.09 A. The coördination group $[CuO_4]$ is typical, with 3 O^{--} nearer and 2 O^{--} farther away from the Cu centers, similar to the corresponding coördination with S in covellite. The distances Si − O are 1.58, 1.53, 1.63, and 1.78 A., those O − O vary between 2.38 A. (for $O_I - O_I$ in the tetrahedra) and 2.76 A. The H_2O mols. form a hexagonal arrangement in 2 levels, with the distance $H_2O - H_2O$ = 2.82 A. Every H_2O mol. is 2.48 A. from the neighboring O_{II}, with a H bonding. To every H_2O belong 4 neighbors in a somewhat distorted tetrahedron of the type $[2(H_2O) + Cu^{--} + O_{II}]$. The structure is in agreement with the prevailing macroscopic development of the form {0221} of dioptase. W. Eitel

BUTUZOV, V. P.

Measurements of melting points of metals under extremely high pressures. V. P. Butuzov, M. G. [illegible], and S. P. Smirnov. *Doklady Akad. Nauk* [illegible] 86, [illegible] (Engl. translation issued as [illegible] *Energy Comm.* NSF-tr-76, [illegible]). A method of measuring m.p. of metals under very high pressures is described; an elec. heating device is placed inside the pressure vessel and the temp. of solidification of the molten metal inferred from the leveling of the temp. curve of the cooling melt. The m.p. of Bi was measured over the pressure range from 1 to 22,200 kg./sq. cm. and a m.-p. range from 271° at 1 kg./sq. cm. to 187° at 18,700 kg./sq. cm. was found; at 22,200 kg./sq. cm. the m.p. had increased to [illegible]°. The method is applicable to high-temp. and very high-pressure measurements.

H. F. B.

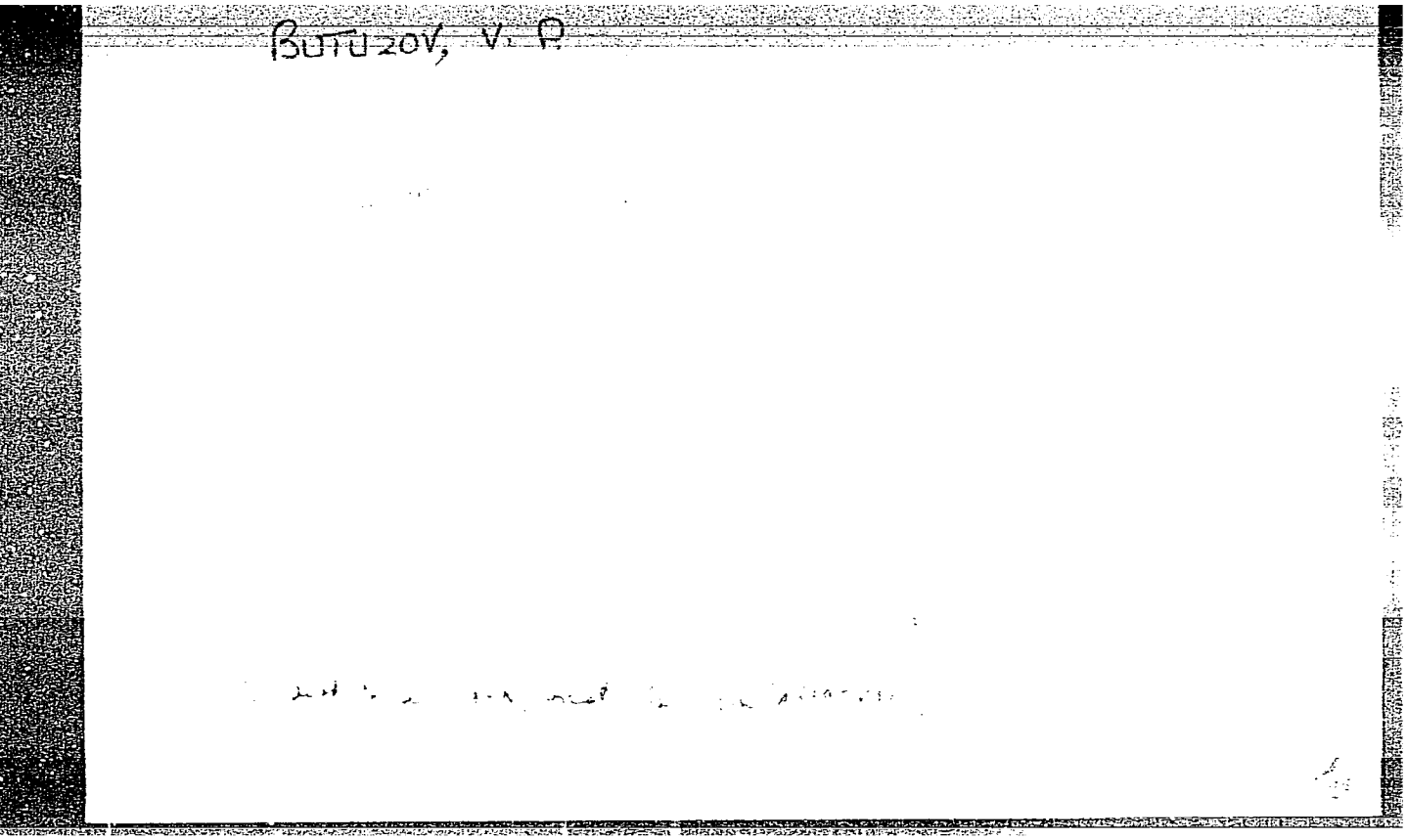
BUTUZOV, V. P.

Melting temperatures of tin and lead at pressures reaching 34,000 kg./sq. cm. V. P. Butuzov and M. G. Gonikberg. *Doklady Akad. Nauk S.S.S.R.* 91, 1083–4(1958) (Engl. translation issued as U.S. Atomic Energy Comm. NSF-tr-144, 2 pp.(1953)).—The m.ps. of Sn and Pb rise with increase in pressure, and the rise is more rapid in the case of Pb. As the pressure increases, the value dt_{melt}/dp gradually decreases. In the pressure range of 8000–12,000 kg./sq. cm., the av. rise in melting temp. for a 1000 kg./sq. cm. increase in pressure is 2.9° for Sn and 6.8° for Pb. In the pressure range 20,000–30,000 kg./sq. cm. the values are 2.2° for Sn and 5.4° for Pb. The melting temps. at 33,000 kg./sq. cm. are Sn 315° and Pb 527°. J. R. B.

VP Butuzov, V P

93. Thread guides of artificial corundum.—V. P. Butuzov (*Bull. Acad. Sci. U.R.S.S.*, No. 3, 66, 1954).

No abstract



USSR/Chemistry - Polymerization

Card 1/1 : Pub. 22 - 21/44

Authors : Gonikberg, M. G.; Butuzov, V. P.; and Zhulin, V. M.

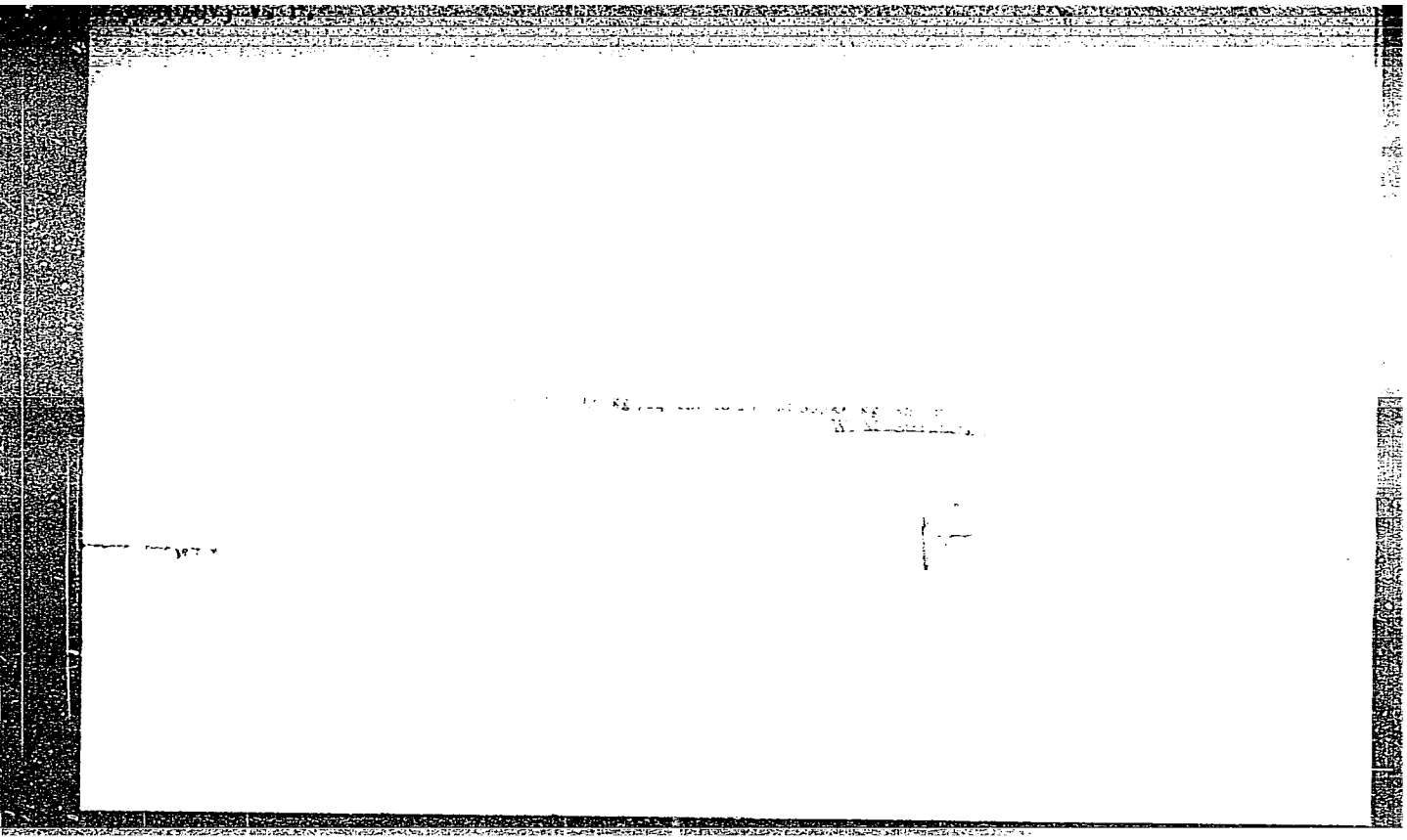
Title : Polymerization of tetramethylethylene at pressures ranging up to 27500 atm

Periodical : Dok. AN SSSR 97/6, 1023-1026, Aug 21, 1954.

Abstract : The results obtained during thermal polymerization of tetramethylethylene at high and ultra-high pressures, are described. The properties of tetramethylethylene polymerization products (unsaturated dimer $C_{12}H_{24}$ and high-molecular unsaturated polymers) were analyzed. Possible ways for dimerization (thermal dimerization) of tetramethylethylene, are discussed. It was established that ultra-high pressures (23000 - 27500 atm) not only accelerate the polymerization of hydrocarbons but even displace the polymerization equilibrium. Nine references: 5-USSR and 4-USA (1925-1953).

Institution : Acad. of Sc. USSR, Institute of Crystallography and the N. D. Zelinskiy Institute of Organ. Chemistry

Presented by : Academician B. A. Kazanksiy, April 15, 1954



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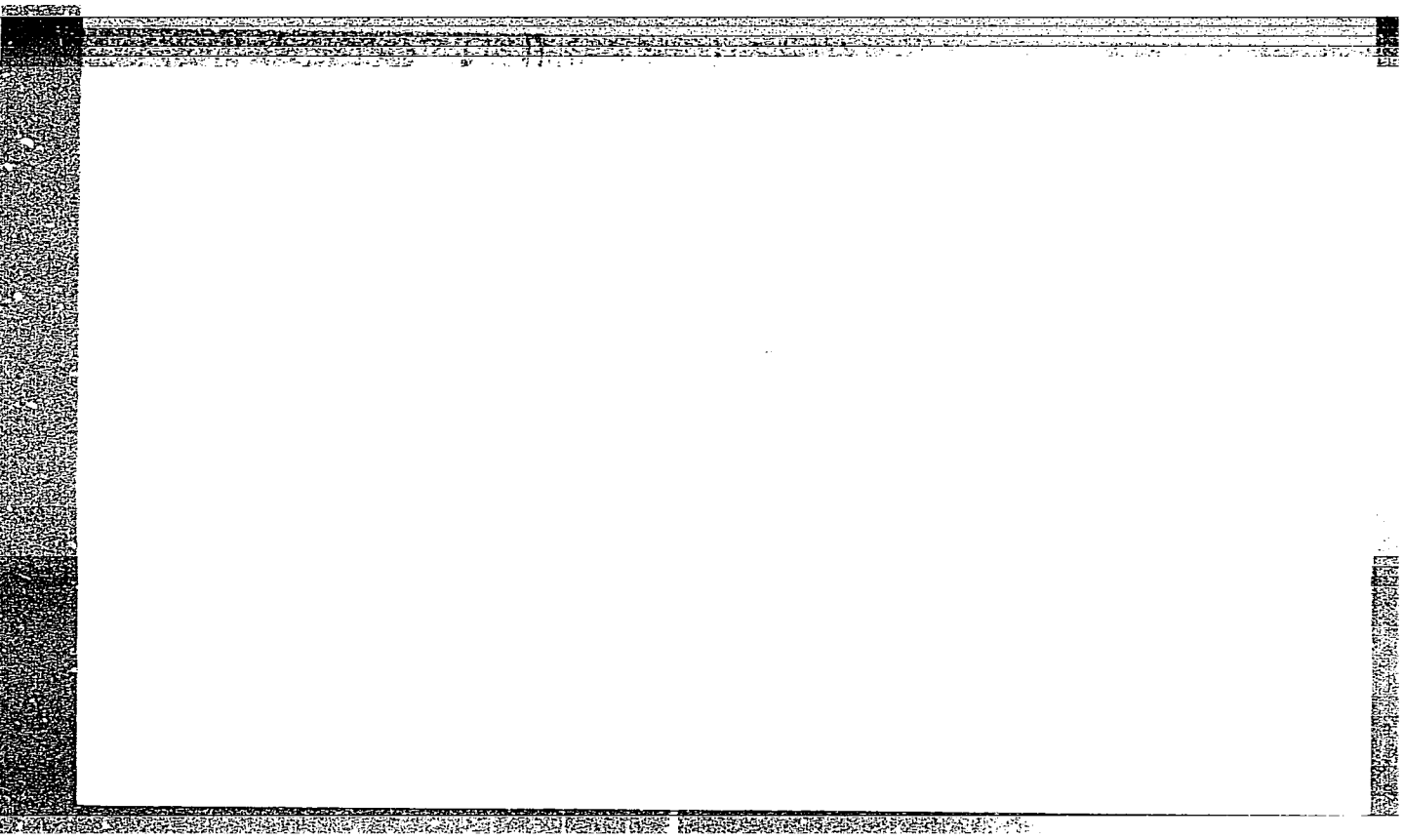

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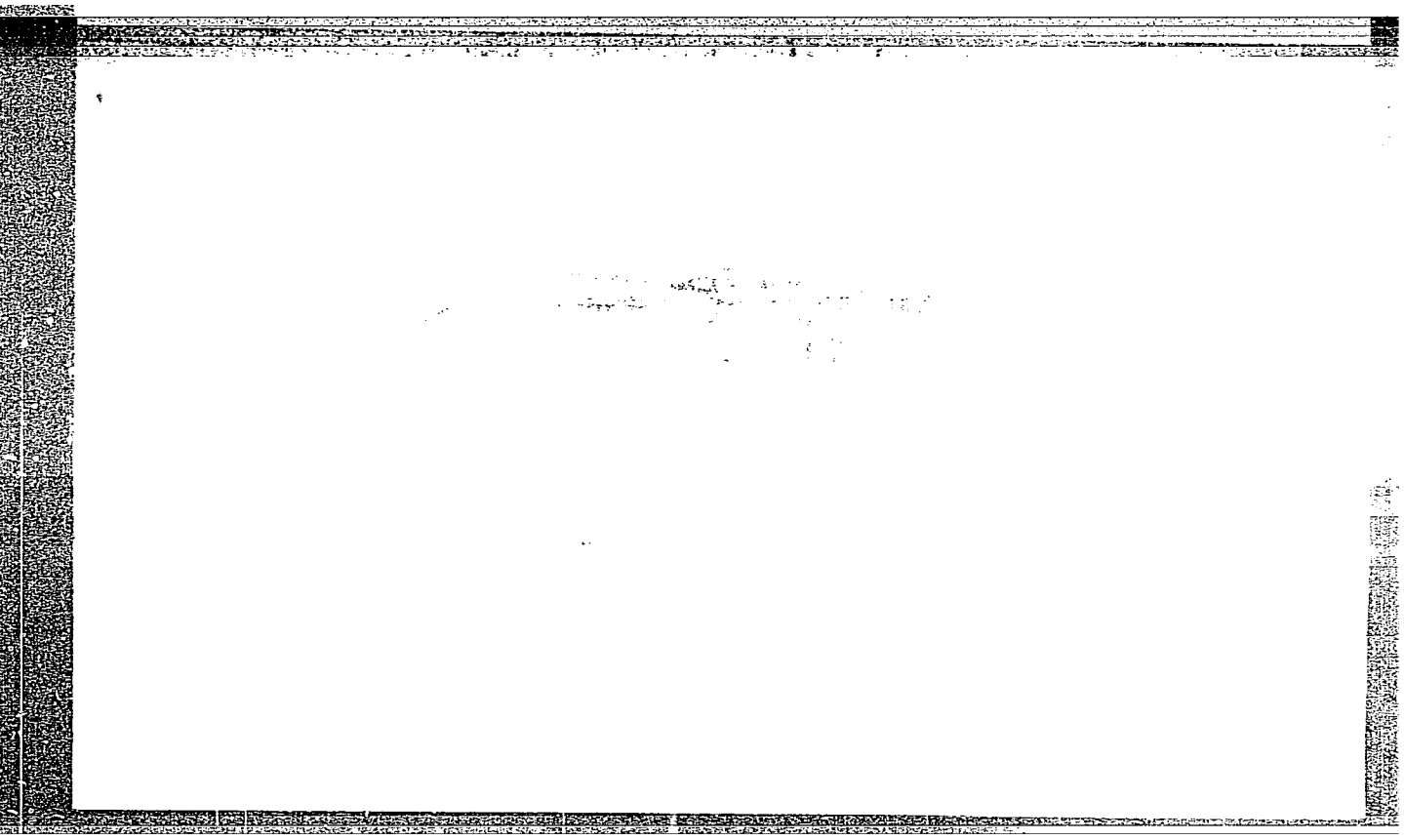

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BUTUZOV, V.P.; SHAKHOVSKOY, G.P.; GONIKBERG, M.G.

Intensifiers for conducting studies in superhigh pressures and high temperatures. Trudy Inst.krist.no.11:233-238 '55.
(Hydraulic machinery) (MIRA 9:6)

BUTUZOV, V. P.

USSR/ Chemistry - Crystallography

Card 1/1 Pub. 86 - 14/38

Authors : Butuzov, V. P., Cand. Physico-Math. Sc.

Title : Artificial precious crystals

Periodical : Priroda 44/6, 86 - 89, Jul 1955

Abstract : The fact that diamonds can be heated to higher temperatures than other materials without turning into graphite when high pressure is applied during heating, is presented as a basis for the conclusion that crystallization of carbon takes place only when it is subjected to great heat and high pressure at the same time. An account is given of making small diamonds by subjecting carbon to a temperature of 2800°C and 100,000 Kg/cm^2. The conditions under which corundum is made are explained in detail. Making of other artificial crystals is also discussed. One USA reference (1955). Illustrations.

Institution : .....

Submitted : .....

BUTUZOV, V. P.

Some data on the growth of crystals of artificial quartz. N. Ye Ikornikova and V. P. Butuzov. *Zapiski Vsesoyuz. Mineralog. Obshchestva*, 84 [1] 125-33 (1955).—Quartz crystals grown in the usual manner in an autoclave in a solution with a temperature gradient were observed when their growth was interrupted. Growth on seed crystals ground parallel to various faces was observed. Growth on the *R* face (1011) was much more rapid than on the *m* face (1010). When a seed is ground parallel to a secondary face, at first growth produces a fairly fast regeneration of the *m* face, but thereafter the *R* face accounts for all the growth. The ground face of a seed crystal produces many growth centers. These produce little mounds of growth, apparently of concentric layers, showing a spiral growth habit when observed by interferometry, usually 0.01 to 0.02 mm. in height and in size a few microns to 25 mm. These mounds generate additional growth centers. Little by little the growth from many centers changes to tangential motion of crystal layers along the whole face from edge to center. A seed ground parallel to the pinacoid (0001) face showed a succession of changes beginning with accessory growth on many small centers, successive consolidation of the centers, and shrinkage of the plane surface as the typical rhombohedron form builds up on the original ground plane. An analogous series of steps follow seeding by a crystal ground parallel to the dipyramid *s*. Growth of Dauphiné and Brazil-type twins was observed both with and without twinned seeds. Twins in a seed always persist in subsequent growth. If the *R* and *r* faces are present in a seed, the Dauphiné twin develops but with different speeds of growth of the two faces; twinned crystals grow faster than single ones. As a result, natural quartz is generally twinned. A single crystal seed, however, will always grow into a single quartz crystal under laboratory conditions. 10 figures, 2 references. D T W

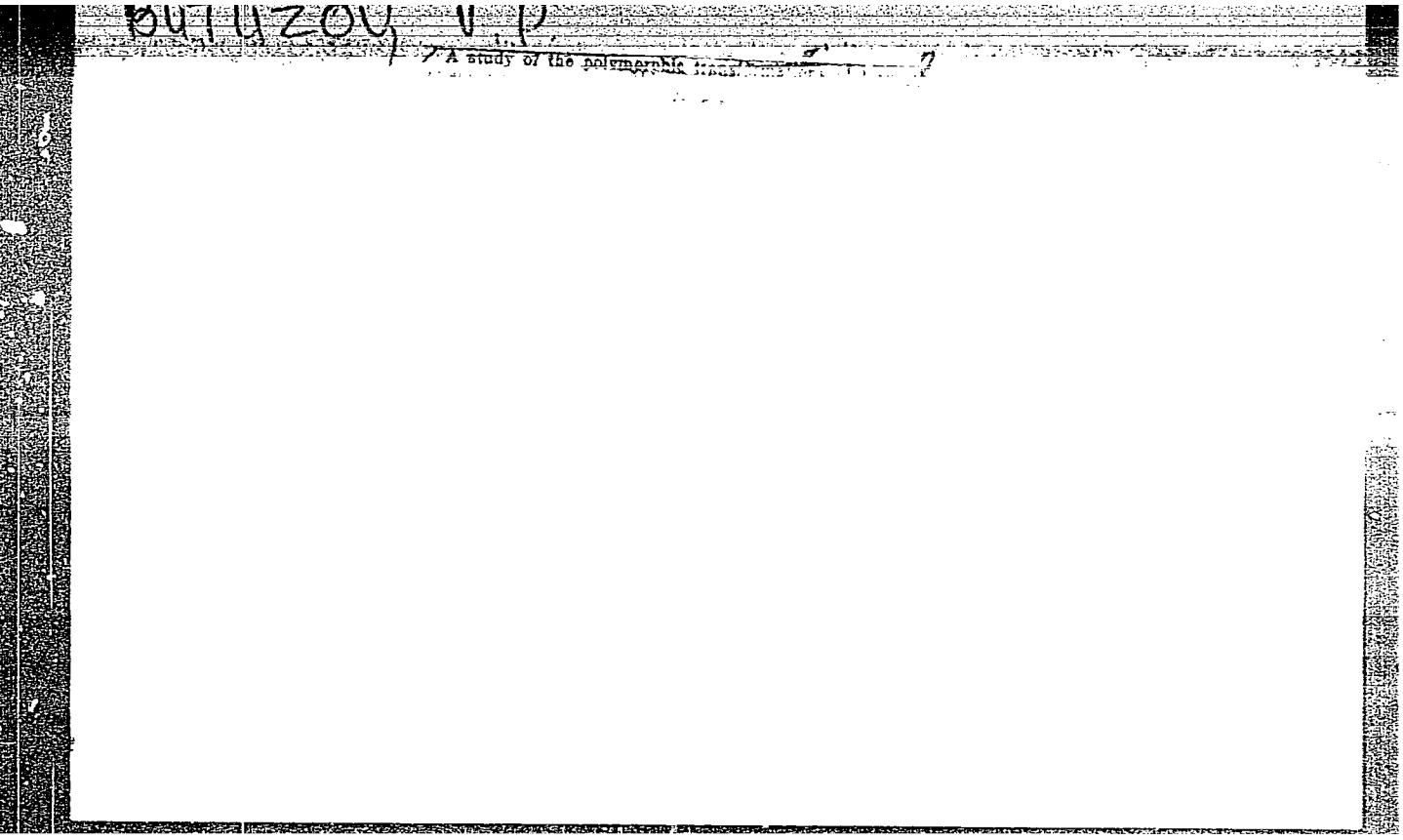
(1)

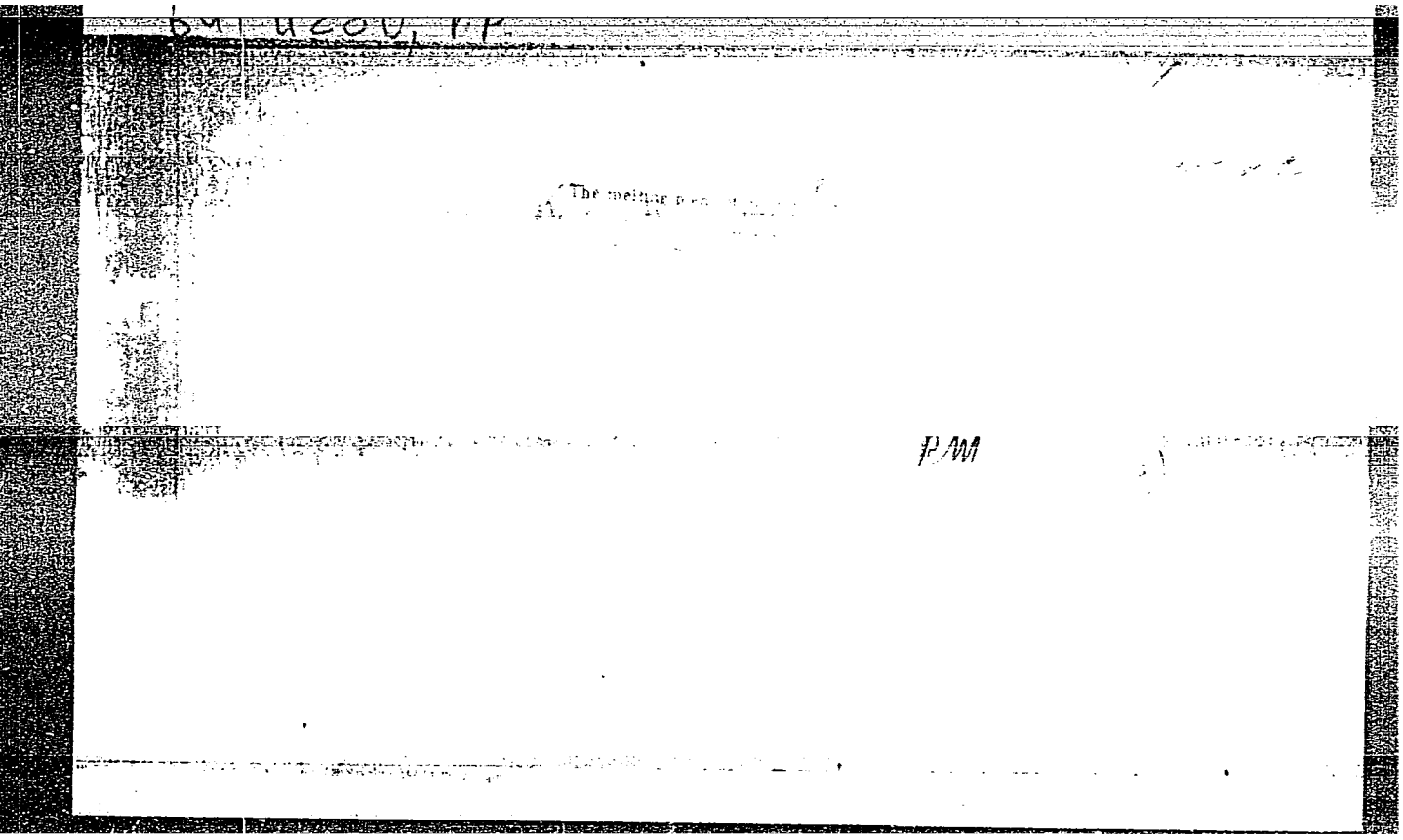
Butuzov, V. P.

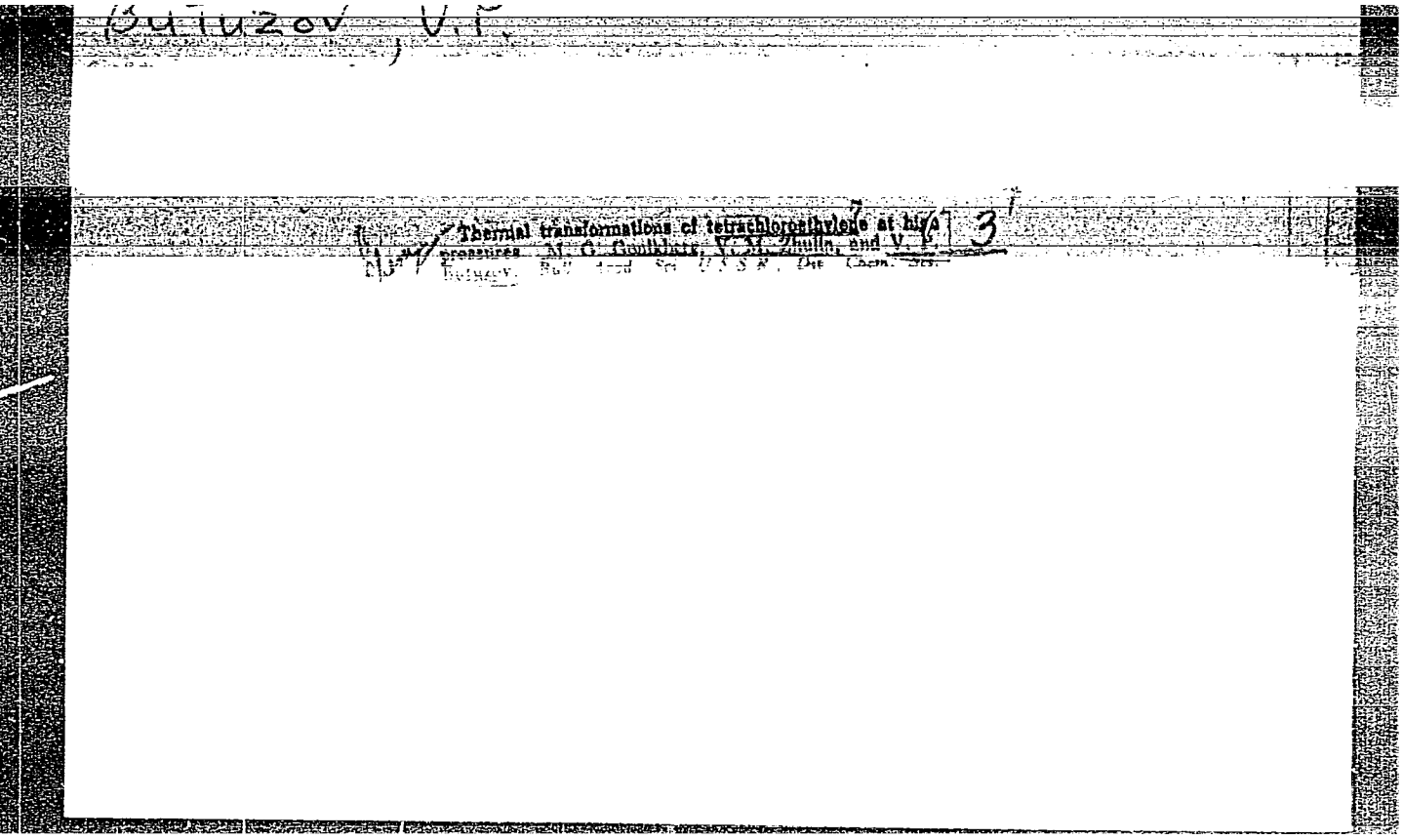
4

Liquid inclusions in artificial quartz. V. P. Butuzov and N. Yu. Ikornikova. *Doklady Akad. Nauk S.S.S.R.*, 104 [1] 76-77 (1955).—A study was made of gas-liquid inclusions in 10 crystals grown in solutions of the same composition and with the same coefficient of filling of the autoclave but at different temperatures. Gas-liquid inclusions can be obtained when the inoculation is a fragment of a crystal or when there is an irrational face on the inoculating crystal. The temperature of homogenization of gas-liquid inclusions is the same in different zones of growth of the same crystal. Gas-liquid inclusions of these crystals had the same temperature of homogenization. B.Z.K.

made







Butuzov, V.P.

Thermal transformations of tetrachlorethylene at high pressures. M. G. Gonikberg, V. M. Shulin, and V. P. [illegible]

GONIKBERG, M.G.; ZHULIN, V.M.; BUTUZOV, V.P.

Thermal conversion of tetrachloroethylene at super-high pressures.
Izv.AN SSSR.Otd.khim.nauk no.6:730-732 Je '56. (MLRA 9:9)

1.Institut organicheskoy khimii imeni N.D.Zelinskogo Akademii nauk SSSR i Institut kristallografii Akademii nauk SSSR.
(Ethylene)

1. BUTUZOV, V. P.

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29908

Author : Butuzov V. P., Gonikberg M. G.
Inst : not given
Title : Determination of the Temperature of Fusion of Some Metals at Super High Pressures

Orig Pub: Zh. neorgan. khimii, 1956, 1, No 7, 1543-1547

Abstract: Inside a conical high-pressure vessel, provided with a double support are placed a heating coil and the crucible with the metal under study. The temperature is measured with a thermocouple, one junction of which is in the crucible and the other in the cold portion of the pressure vessel. Temperature of the cold junction is measured with a resistance thermometer. Pressure measured with a manganin manometer. The fusion temperature of bismith was measured and it was found that it

*/up to 35000 kg/cm^2 is produced in a mixture of iso-pentane and pentane and is...

Card : 1/2 -24-

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29908

decreases with pressure, from 271° at 1 atmosphere to 186° at 17400 kg/cm², which is the triple point of bismuth I - bismuth II - melt. From the triple point, the fusion temperature of the denser modification, bismuth II, increases to 190° at 22000 kg/cm². In the case of tin the fusion temperature rises from 232° at 1 atmosphere to 315° at 33000 kg/cm², while in the case of lead it rises from 327° at 1 atmosphere to 532° at 34000 kg/cm². As the pressure increases the value of $dt_{(fusion)}/dp$ decreases gradually.

Card : 2/2

Stable crystal form of synthetic quartz. V. P. Butuzov and N. Yu. Ikornikova. *Zapiski* [illegible]

[illegible] the simple forms combined with {10$\bar{1}$0} and {10$\bar{1}$1} are always stable; these crystal types are very similar in their growth conditions to the stable combinations of {11$\bar{2}$0} and {11$\bar{2}$1} in $MgSO_4 \cdot H_2O$. The characteristic horizontal striation [illegible] of natural quartz is absent in the high [illegible] quartz [illegible] but it was observed if the crystn took place at relatively low temps. Obelisk-like slender crystals [illegible] horizontal striation [illegible]

Butuzov, V.P.

E-6

USSR/Phase Transformation in Solid Bodies.

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11740

Author : Butuzov, V.P., Boksha, S.S., Gonikberg, M.G.

Inst : Institute of Crystallography, Academy of Sciences, USSR.

Title : Polymorphous Transformations of Phosphorus at Superhigh Pressure.

Orig Pub : Dokl. AN SSSR, 1956, 108, No 5, 837-840

Abstract : Unlike the existing externally-heated superhigh pressure apparatus, which makes it possible to investigate polymorphous transformations under pressure at relatively low temperatures, the authors have developed an original set-up for superhigh pressure and a new procedure for measuring temperature with continuous automatic recording during the transformation process. The new procedure was used to study the polymorphous transformation of black

Card 1/2

SUBJECT USSR / PHYSICS
AUTHOR BUTUZOV, V.P., PONJATOVSKIJ, E.G., SACHOVSKOJ, G.P.
TITLE The Melting Temperature of Zinc, Cadmium, Thallium, and Antimony at Pressures of up to 30.000 kg/cm^2.
PERIODICAL Dokl.Akad.Nauk, 109, fasc. 3, 519-520 (1956)
Issued: 9 / 1956 reviewed 9 / 1956

The influence exercised by pressure on the melting temperature of chemically pure Zn, Cd, Tl and Sb is studied. A diagram illustrates the melting curves of these elements up to 30.000 kg/cm^2 pressure, which were plotted on the basis of experimental data. If pressure is increased from 0 to 30.000 kg/cm^2, the melting temperature of Zn, Cd and of Tl increases by 129°, 187° and 190° respectively. This increase is linear in the case of Zn and Cd, but in the case of Tl this increase is somewhat decelerated with increasing pressure. However, the melting temperature of antimony decreases if pressure is increased from 0 to 30.000 kg/cm^2, and this decrease accelerates somewhat with growing pressure. Thus, antimony, like bismuth and thallium, has an abnormal course of the melting curve in dependence on pressure.
Because of the anomalous pressure dependence of the melting temperature of antimony as well as because of the similarity of the physical and chemical properties with bismuth and antimony, it may be assumed that antimony passes through a polymorphous transformation at excessively high pressures just like Bi I→Bi II. On the occasion of the thermal examination of antimony at pressures of up to 30.000 kg/cm^2 in the temperature interval of between room temperature and melting

temperature no polymorphous transformation was found to occur. Probably polymorphous transformation occurs only at pressures of more than 30.000 kg/cm^2. P.W.BRIDGMAN, Phys.Rev. 48, No 11, 892 (1935) found a jump of the amount of fissional stress of antimony to occur at room temperature at a pressure of ~50.000 kg/cm^2. This experimentally determined value is registered in a pressure-temperature diagram, and the probable continuation of the melting curve as well as the line of separation between the two polymorphous modifications of antimony is indicated. It may thus be assumed that the position of the triple point in the state diagram of antimony is determined by the following parameters:

T ~ 550° and p ~ 40.000 kg/cm^2.

I.S.ŽDANOV participated in this work.

INSTITUTION: Institute for Crystallography of the Academy of Science in the USSR.

105-6(1956). -Based on the expts. ... (Ibid ... U.S.S.R. 111, 1001c) that hydrothermal ... of Khitarov ([illegible]

Butuzov, V.P.

1-4E2c

MEASUREMENTS OF THE MELTING POINTS OF ALUMINUM AND COPPER AT PRESSURES [illegible]
M. G. Gonikberg, G. P. Shakhovskoi and [illegible]
(Inst. of Crystallography, Acad. of Sciences, U.S.S.R.
Zhur. Fiz. Khim. 31, 1839 (2/1957) Aug. (In Russian)

Determination of Al and Cu melting points in an inert gas showed that within the limits of experimental error the melting points of the metals rise linearly with the pressure. The applicability of Simon's equation to the melting points of metals at high pressure is discussed. (tr-auth)

Butuzov, V. P.

70-5-17/31

AUTHORS: Butuzov, V.P. and Bryatov, L.V.

TITLE: A Study of the Phase Equilibria in Part of the System $H_2O - SiO_2 - Na_2CO_3$ at High Temperatures and Pressures (Issledovaniye fazovykh ravnovesiy chasti sistemy H_2O - $SiO_2 - Na_2CO_3$ pri vysokikh temperaturakh i davleniyakh)

PERIODICAL: Kristallografiya, 1957, Vol.2, No.5, pp. 670 - 675 (USSR)

ABSTRACT: The quantitative composition of the solid and liquid phases occurring in equilibrium in the water-rich end of the system $H_2O-SiO_2-Na_2CO_3$ has been measured at high temperatures (300-400 °C) and pressures (1 500 atm.). The increase in the concentration of the Na_2CO_3 in the solution (up to 10%) leads to a great increase in the solubility of quartz. The temperature coefficient of the quartz solubility does not change with the carbonate concentration. The temperature and pressure dependence of the solubility of the quartz were measured. The pressure scarcely alters the solubility of quartz if there is no heavier liquid phase but under certain conditions pressure may greatly affect the equilibrium. If there is no heavier liquid phase the solubility of quartz increases with temperature but its presence leads to a sharp decrease in the temperature

Card1/2

A Study of the Phase Equilibria in Part of the System H_2O - SiO_2 - Na_2CO_3 at High Temperatures and Pressures. 70-5-17/31

coefficient of solubility which may even become negative. Boundaries of the phase diagram were established. Stainless steel bombs were partially filled with Na_2CO_3 solution and with weighed quartz crystals fixed to the plugs they were placed in a furnace for sufficient time for equilibrium to be reached. It is known that two liquid layers with different concentrations of quartz can be formed so the bombs were inverted, quenched in the inverted position and then righted for opening. In this way, the time of the contact in which the heavier phase could react with the solution was sharply reduced. Of the two liquid phases the solution will contain up to 3% SiO_2 and the heavier phase may contain 50% SiO_2 .

There are 9 diagrams, 1 table, 13 references, 4 of which are Slavic.

ASSOCIATION: Institute of Crystallography Ac.Sc. USSR. (Institut Kristallografii AN SSSR)

SUBMITTED: May 5, 1957.
AVAILABLE: Library of Congress

Card 2/2

Butuzov, V.P.

USSR/Physical Chemistry - Thermodynamics, Thermochemistry, B-8
Equilibria, Physical-Chemical Analysis, Phase Transitions.

Abs Jour : Referat Zhur - Khimiya, No 1, 1958, 385

Author : M.G. Gonikberg, G.P. Shakhovskoy, V.P. Butuzov.
Inst : Inst. Cryst., Acad. Sci. USSR.
Title : Determination of Heat of Phase Transition of Cerium under Pressure.

Orig Pub : Zh. fiz. khimii, 1957, 31, No 2, 350-353

Abstract : The heat of the phase transition of cerium was determined by the method of thermographs for high pressures based on the comparison of thermal effects of phase transformations of the substance under study with standards at various but close-by pressures and a constant temperature. Mercury was chosen as the standard. Cerium used for the study was 97% pure. The experiments were carried out in a multiplicator of ultrahigh pressure with a working channel of 25 mm. The heat of the phase transition of cerium, equal to

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Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 385

880 cal per g-atom at the temperature from 13 to 18° and the pressure of about 7000 kg per sq.cm, was determined with the exactitude to ± 0.5%. The results of the investigation confirm the thesis concerning the identity of the cerium modification forming under high pressures with its low-temperature modification.

S/564/57/000/000/023/029
D258/D307

AUTHORS: Butuzov, V. P., and Bryatov, L. V.

TITLE: On the problem of growing quartz crystals

SOURCE: Rost kristallov; doklady na Pervom soveshchanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 305-310

TEXT: The authors studied the solubility of quartz in aq. Na_2CO_3 (5%) at up to 1600 atm, at 250, 300, 350 and 400°C. The method consisted of suspending a quartz block in the solution contained in an autoclave, and keeping the system under preset conditions for 5 days. Loss in weight of the block per ml of solvent - % filling of the autoclave curves showed that (a) loss in weight increases smoothly with temperature; (b) for 350 and 400°C, loss in weight decreases to a minimum at ~73% filling and increases sharply for lower degrees of filling. This discontinuity is ascribed to the formation of a new "heavy" phase

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S/564/57/000/000/023/029
D258/D307

On the problem of...

(e.g., 55 - 60% SiO_2, 10 - 20% Na_2O, 35 - 20% H_2O). At 250 and 350°C the solubility of quartz increases slowly and linearly with increasing pressure; at 350 and 400°C, the solubility was lower than at 250 and 300°C until higher pressures were reached (~300 and 800 atm respectively) and increased rapidly thereafter with pressure up to 400 and 1100 atm. From these pressures on, the solubility increased slowly and linearly with increasing pressure. This complex course of the solubility-pressure curves is also ascribed to the presence of the "heavy" phase. The production of quartz crystals is discussed in view of the above results. It is hence believed that the suitable conditions for growing quartz crystals are 350 - 400°C at ~1000 atm, and preferably 400 - 420°C at 1000 - 1200 atm. Various combinations of temperature and pressure ranges are discussed. There are 3 figures.

Card 2/2

S/564/57/000/000/024/029
D258/D307

AUTHORS: Butuzov, V. P., and Boksha, S. S.

TITLE: A new method of studying phase transformations at high pressures and temperatures and its application to the study of the polymorphism of phosphorus

SOURCE: Rost kristallov; doklady na Pervom soveshchanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 311-319

TEXT: The present work is concerned with some problems of the simultaneous production of ultra-high gas pressures and elevated temperatures, measurement of these quantities, and their application. The high pressures were produced by means of solid CO_2 and liquid layers between gaskets and the compressed gas. The temperature inside the pressure vessel was measured with the aid of a combined 4-junction thermocouple,

Card 1/2

A new method of...

2 junctions of which were under pressure. Fe-nichrome couples were used up to 600°C, and Pt/Pt-Rh at higher temperatures. A photo-recording pyrometer was also used at ultra-high pressures for automatic recording of heating and cooling curves. Pressure was measured with manganin manometers calibrated by the allotropic transformations of various substances, using the data of Bridgman. The apparatus was applied to study of the conditions of formation of black crystalline phosphorus at up to 22,000 kg/cm^2, showing that this modification is stable up to its m.p. ($\sim$1000°C at 18,000 kg/cm^2). No new modifications were found. There are 8 figures.

S/564/57/000/000/025/029
D258/D307

AUTHORS: Butuzov, V. P., and Dobrovenskiy, V. V.

TITLE: An apparatus for the preparation and purification of high-melting single crystals by the method of zone melting

SOURCE: Rost kristallov; doklady na Pervom soveshchanii po rostu kristallov, 1956 g. Moscow, Izd-vo AN SSSR, 1957, 320-325

TEXT: A description is given of an apparatus for the preparation and multiple zone refining of crystals in vacuum or an inert atmosphere at up to 2000°C. The apparatus is fitted with 3 heaters. The specimens are held in 4 refractory boats, not wetted by the molten compound in question, placed in holders rigidly fixed to a rotatable cross-piece cooled with running water. In operation, the boats move in turn through the hot zones of the 3 heating elements at 10 - 80 mm/hr; the temperature

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An apparatus...

in these zones was measured by a thermocouple ЦНИИЧМ -1 (TsNIIChM-1) having a high emf, linearly varying with temperature, at 1000 - 2000°C. One turn of the cross-piece yields, therefore, 4 monocrystals, each of which undergoes triple purification. Construction of the elements is described in detail. The apparatus was used to produce 30 mm long and 10 mm in dia monocrystals of nickel, using silica boats and rotating the cross-piece at 30 mm/hr. The authors acknowledge the initiative and suggestions of Aleksey Vasil'yevich Shubnikov. There are 4 figures.

BUTUZOV, V. P.

70-4-14/16

AUTHOR: Butuzov, V.P.

TITLE: The Investigation of Phase Transformations at Superhigh Pressures. (Issledovaniye fazovykh prevrashcheniy pri sverkhvysokikh davleniyakh).

PERIODICAL: Kristallografiya, 1957, Vol.2, Nr 4, pp.536-547 (USSR)

ABSTRACT: A pressure vessel has been designed and constructed, following principles similar to those used by Bridgman, which enables pressures of 30 000 - 34 000Kg/cm^2 to be reached. An internal heater is incorporated which will heat gases to 1500 C and liquids to 600 C. Methods of measuring the temperature, pressure and heat of transformation in the vessel have been developed. The internal volume of the working space is 10-20 cm^3. The pressure is measured from the resistance of a manganin coil and the temperature by a differential thermocouple to + 0.5°. The latter works between the hot specimen and the massive base plug of the chamber, the temperature of which is measured by an external thermocouple to 0.1 C. Six leads enter the working chamber. The variation of m.p.with pressure was measured for Cu, Al, Sb, Zn, Pb, Cd, Tl, and Sn up to 32 000 Kg/cm^2 for all but Cu for which the limit was 17 000 Kg/cm^2 at which temperature the m.p. was 1155 C. The polymorphic transformations of P and Bi

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The Investigation of Phase Transformations at Superhigh Pressures.

were investigated and the phase diagram for the latter was completed by the addition of the boundaries between the β-phase and the liquid and the γ-phase and the liquid. For the remainder of the diagram the author's data agreed closely with those of Bridgman. Black crystalline phosphorus was investigated up to 20 000 Kg/cm^2 and 1200 C but no new phase was found. On compressing red phosphorus a new modification was observed above 40 000 Kg/cm^2 and 600 C which transformed reversible with a very small thermal effect. There are 2 tables and 8 figures, and 32 references, of which 18 are Slavic.

ASSOCIATION: Institute of Crystallography, Ac.Sc., USSR. (Institut Kristallografii, AN SSSR).

SUBMITTED: February 28, 1957.

AVAILABLE: Library of Congress.

Card 2/2

137-58-4-6974

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 4, p 94 (USSR)

AUTHORS: Butuzov, V. P., Dobrovenskiy, V. V.

TITLE: An Installation for Floating Zone Production and Purification of Refractory Single Crystals (Ustanovka dlya polucheniya i ochistki tugoplavkikh monokristallov metodom zonnogo proplavleniya)

PERIODICAL: V sb.: Rost kristallov, Moscow, AN SSSR, 1957, pp 320-325

ABSTRACT: An installation for producing single crystals and for multiple purification of various substances in vacuum (6×10^{-4} mm Hg) or in an inert gas atmosphere at temperatures of up to 2000°C by the floating-zone refining method is described. The specimens to be crystallized were placed in 4 boats fastened to holders rigidly mounted to a spider. As the spider rotated, the boat successively passed through 3 graphite heating elements which created a narrow zone of fusion. The rotation of the spider by means of a motor and reduction gear caused the boats to move at a linear velocity of 10-80 mm/hr. A single rotation of the spider produced 4 single crystals, each of which passed through triple purification by zonal fusion. The apparatus made it possible to obtain single crystals of Ni up to 30 mm in length and

137-58-4-6974

An Installation for Floating Zone Production (cont.)

10 mm in diameter from a single zonal fusion operation, as the boats cracked on cooling.

N. Sh.

1. Single crystals--Production 2. Single crystals--Purification

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Z/508/60/000/000/005/018
E193/E320

AUTHOR: Butuzov, V.P.

TITLE: A study of phase transformations under ultrahigh pressures

SOURCE: III. Konference o monokrystalech. Prague, Výzkumný ústav pro minerály, 1960. 39 - 67

TEXT: In the first part of the present paper the author describes equipment used in the Soviet Union for studies of various processes taking place under ultrahigh pressures at elevated temperatures. The equipment is designed on the "external support" principle and consists of two coaxial, oppositely directed presses. One press is used to compress a liquid or a gas in the cylinder of the high-pressure vessel, the outside of which is in the shape of a truncated cone, while at the same time the second press forces the conical vessel into a corresponding conical sleeve or die, which provides a supporting pressure whose magnitude is given by:

$$P = T/\pi (a^2 - b^2)$$

where T is the actual load acting on the conical vessel, and

Z/508/60/000/000/005/018
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A study of ....

a and b are the radii of the large and small bases of the truncated cone. By introducing some modifications (additional supporting die, compressor for the liquid or gas used, heaters) to this basic design, equipment has been constructed capable of producing pressures of up to 40 000 kg/cm^2 in liquids at temperatures up to 600 °C and in gases at temperatures up to 2000 °C. After a detailed description of the equipment and methods of measuring the temperature and pressure, the author discusses the results of several investigations. The effect of pressure on the melting point of various metals is demonstrated in Fig. 7, where the melting point of metals indicated by each curve (°C) is plotted against pressure (P, 10^3. kg/cm^2). Studies of the effect of high pressure (up to 20 000 kg/cm^2) and temperature (up to 1200 °C) on crystalline black phosphorus did not reveal any phase transformations; it was found only that the melting point of this substance increased with increasing pressure, reaching approximately 1000 °C at P = 18 000 kg/cm^2. The formation of a new modification of red phosphorus was observed at 4000 kg/cm^2 and 600 °C; the transformation was reversible and was indicated by

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Z/508/60/000/000/005/018
E193/E320

A study of ....

a discontinuity in the melting-point versus pressure curve. The results of experiments conducted on bismuth are reproduced in Fig. 10, showing the equilibrium diagram of this metal in the temperature/pressure coordinates. Finally, the heat of the phase transformation taking place in cerium under pressure was determined and found to be equal to 880 ± 40 calories per gram.at. The results confirmed the view that the allotropic modification of cerium existing at high pressures was identical with the modification formed at low (109 °K) temperatures.
There are 11 figures and 2 tables..

ASSOCIATION: Institut kristallografii AN SSSR, Moskva
(Institute of Crystallography of the AS USSR, Moscow)

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A study of ....

Z/508/60/000/000/005/018
E193/E320

Fig. 7:

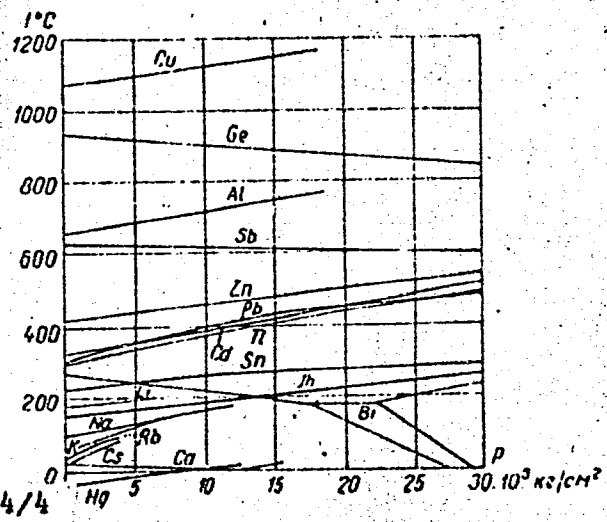
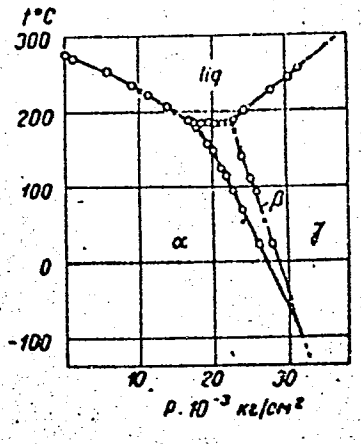


Fig. 10:



Card 4/4

BUTUZOV, V.P.; MIRINSKIY, D.S.; KATS, G.S.

Collet intensifier for obtaining ultrahigh pressures. Trudy VNIIP [MS] 3 no.2:113-117 '60. (MIRA 14:4)
(High pressure research)

33651
S/058/61/000/012/003/083
A058/A101

1.6000

AUTHORS: Butuzov, V.P., Mirinskiy, D.S., Kats, G.S.

TITLE: Draw-in intensifier for producing superhigh pressure

PERIODICAL: Referativnyy zhurnal. Fizika, no. 12, 1961, 20, abstract 12A311 (Tr. Vses. n.-i. in-ta p'yezooptich. mineral'n. syr'ya, 1960, v. 3, no. 2, 113 - 117)

TEXT: The present article describes the design of a high-pressure intensifier in the form of a two-way hydraulic press with a high-pressure block. The high-pressure block is designed as a self-centering device reminiscent of a draw-in clamp. The substance to be compressed, which is cube-shaped, is placed between six punches. The upper and lower punches are displaced towards each other by displacing the upper and lower presses. The four lateral punches approach each other by virtue of the displacement of a special ring. The design enables one to heat the specimen and measure its temperature.

Ye. Ponyatovskiy

[Abstracter's note: Complete translation]

Card 1/1

26306
Z/037/62/000/002/001/015
E112/E435

9.2180

AUTHOR: Butuzov, V.P. (Moscow)

TITLE: Synthetic quartz crystals

PERIODICAL: Československý časopis pro fysiku, no.2, 1962, 105-112

TEXT: Various aspects of Soviet work on the growing of synthetic quartz crystals by the temperature-gradient and the constant-temperature hydrothermal processes are reviewed. Applying high pressures, the author was the first to grow large crystals by the temperature-gradient method, and the piezoelectric properties of his material were practically identical with natural quartz. More recently (1955-1957) the Vsesoyuznyy nauchno-issledovatel'skiy institut p'yezoelektricheskikh materialakh (All Union Research Institute for Piezoelectric Materials) under the direction of A.A.Shternberg, developed a method for growing quartz crystals by low pressure. The present paper deals with I. Evaluation and construction of a suitable autoclave for the temperature gradient method, to be operative at high pressures. A design of an autoclave, now in use, in the shape of a vertical cylindrical bomb, fitted with a self-sealing device, is submitted.

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Z/037/62/000/002/001/015
E112/E435

Synthetic quartz crystals

II. Establishment of solubility graphs of SiO_2 in aqueous Na_2CO_3-solutions over a wide range of temperatures and pressures; this investigation was carried out due to the author's previous observation of anomalies during the growth of quartz crystals from Na_2CO_3-solutions. A hard vitreous layer formed at the bottom of the autoclave, covering the nutrient and withdrawing it thus from crystal formation. Optimum SiO_2-solubilities and phase-relationships were, therefore, determined; the objective being to minimize hard layer formation and to secure improved operating conditions. Experimental procedures for SiO_2-solubility determination are described. The temperature and pressure effects upon solubility were found to be of complex nature, but some data were established as to the effects of volume ratios of reagent mixture to reaction chamber capacity. When the reaction chamber was filled from 75 to 90% of its free capacity with a 5% solution of Na_2CO_3, formation of the heavy phase was not noticed. III. Crystallographic studies of crystal formation and effects of growth characteristics on piezoelectric and optical properties. Transmission of ultraviolet light by the synthetic quartz crystals

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is greatly affected by the crystalline orientation of the seed plates and by the conditions of growth. (Crystals grown on the C-faces showed a 75 to 80% transmission for UV of 2100 Å, while those grown on the R-faces showed a transmission of 55 to 60%.) Crystals grown on the C-faces, on the other hand, are lacking in optical uniformity. Crystals, grown from R seeds are superior in that respect.

IV. Coloration of crystals. Coloured quartz crystals can now be obtained by adding various salts to the sodium carbonate solution from which the crystals are grown. Thus, blue crystals are obtained by adding cobalt compounds.

V. Structural and piezoelectric properties of synthetic quartz crystals. The lattice parameters of synthetic quartz crystals were, as a rule, slightly greater than those of the natural materials. An increase of Al-contents increased the parameters. Similar effects were found on the addition of germanium. The latter increases the refractive index while Al has the opposite effect. There are 2 figures.

SUBMITTED: November 22, 1961

ACCESSION NR: AR3000538 S/0081/63/000/007/0144/0145

SOURCE: RZh. Khimiya, Abs. 7D15

AUTHOR: Butuzov, V. P.; Mirinskiy, D. S.; Kats, G. S.

TITLE: New super-high pressure equipment

CITED SOURCE: Sb. Eksperim. issled. v obl. glubynnykh protssessov. M., AN SSSR, 1962, 172-184

TOPIC TAGS: super-high pressure; 1000-ton press; reduction of radial stress; cubical collet multiplicator

TRANSLATION: Following a brief review of equipment for producing pressures up to 100 kat, the principle of "reduction of radial stress" is considered. According to this principle the cylindrical die is made up of sections which are pressure-fitted into an outer ring. In a steel die of this design a pressure up to 50,000 atmospheres [kat] can be produced. Also a cubical collet multiplicator with six plungers which re-

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ACCESSION NR: AR3000538

strict the space within which a pressure up to 100,000 atmospheres [kat] is produced. This multiplicator is actuated by a single press. The question is also considered concerning optimal design of a press exerting a force up to 1000 tons. -- A. Likhter

DATE ACQ: 21May63 ENCL: 00 SUB CODE: 00

Card 2/2

RYAZANOV, V.S.; BUTUZOVA, V.P.; SIMONOV, G.V.; GOL'DSHTEYN, A.M.; KORNEYEV, N.A.; SAMOYLOV, Ya.M.; LYSYKH, I.V.; KHMEL'NITSKIY, G.S.; KRUTIKOV, Ye.B.; ANTONOV, M.F.; DOBROSEL'SKAYA, T.M.

[Recommendations for the establishment of schemes for planning farming areas] Rekomendatsii po sostavleniiu skhem planirovki sel'skokhoziaistvennykh raionov. Moskva, Stroiizdat, 1965. 151 p. (MIRA 18:7)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy i proyektnyy institut po gradostroitel'stvu. 2. TSentral'nyy nauchno-issledovatel'skiy i proyektnyy institut po gradostroitel'stvu, Moskva.

BUTUZOV, Yevgeniy Aleksandrovich[deceased]; LEN'KOV, S.S., red.; VARGANOVA, A.N., red.izd-va; VORONINA, R.K., tekhn. red.

[Special kinds of die stamping processes] Spetsial'nye vidy shtampovki. Moskva, Vysshaia shkola. 1963. 205 p. (MIRA 17:2)

BUTUZOV, Ye.A., kand.tekhn.nauk; MARKELOV, Yu.I., inzh.

Magnetographic method for testing nonmagnetic current-carrying materials. Vest.mash. 41 no.7:85-87 Jl '61. (MIRA 14:6)
(Magnetic instruments)

MOREV, N.Ye.; ITSKOVICH, Ya.S.; GAGARINOV, B.N.; BUTUZOVA, A.N.; DUBOVA, B.I.; FILATOV, D.K.; KABANOV, V.I.

Mechanized TsNIIKHP-ML-1-59 make continuous production line for making shaped bread. Trudy TSNIIKHP no.8:12-15 '60. (MIRA 15:8)
(Bakers and bakeries--Equipment and supplies)
(Assembly-line methods)

BUTUZOVA, G. Yu.

Clay minerals in sediments of the eastern Black Sea. Izv. AN SSSR. Ser. geol. 24 no.6:33-47 Je '60. (MIRA 14:4)

1. Geologicheskiy institut AN SSSR, Moskva.
(Black Sea—Clay)

BUTUZOVA, G.Yu.; SHTERENBERG, L.Ye.

Distribution of dispersed amounts of manganese, iron, and phosphorus in the manganese-bearing deposits of the Georgian S.S.R. Dokl. AN SSSR 142 no.6:1395-1398 F '62.
(MIRA 15:2)

1. Geologicheskiy institut AN SSSR. Predstavleno akademikom N.M.Strakhovym.

(Georgia--Manganese ores)
(Iron)
(Phosphorus)

BUTUZOVA, G.Yu.

Association of heavy minerals in Paleogene sediments in the South Ukrainian manganese ore basin. Lit. i pol. iskop. no.3:81-90 '63. (MIRA 17:1)

1. Geologicheskiy institut AN SSSR, Moskva.

BUTUZOVA, G.Yu.

Identification of the heulandite group of zeolites from the Paleogene sediments in the south of the U.S.S.R. Lit. i pol. iskop. no.4:66-79 Jl-Ag '64. (MIRA 17:11)

1. Geologicheskiy institut AN SSSR, Moskva.

BUTUZOVA, G.Yu.

Studying zeolites of the heulandite group; some problems of their genesis. Lit. i pol. iskop. no.5:37-50 S-O '64. (MIRA 17:11)

1. Geologicheskiy institut AN SSSR, Moskva.

L 25418-65

ACCESSION NR: AP5002159 S/0120/64/000/006/0120/0125

AUTHOR: Butslov, M. M.; Korn, M. Ya.; Ol'bek, V. F.; Lukashenya, V. I.

TITLE: Microscope with an image-luminance amplifier for studying biological objects

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1964, 120-125

TOPIC TAGS: microscope, luminance amplifier

ABSTRACT: An instrument is described for amplifying the luminance of an image in conventional, luminescent, or dark-field microphotography, and also in micro- and macro-filming of live biological objects. An electron-optical luminance amplifier is mounted over a table upon which a biological microscope is so positioned that the microscope image is projected from its eyepiece onto the photo-cathode. After a luminance-amplification, the new image appears on a luminescent screen can be observed or photographed. The potentialities, required exposure, enlargement, and resolution of the instrument are briefly discussed. Photos of moving amoebae are presented. It is claimed that the

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ACCESSION NR: AP5002159

instrument permits cutting down the exposure time in microphotography work by 2—3 orders and also permits the microfilming of low-luminance objects. Thanks to the considerably-reduced illumination of biological preparations being photographed, it is expected that the live organisms involved will be less injured by light. "The authors wish to thank Ye. M. Brumberg and M. N. Meysel for their valuable discussion of the results. The great attention to this project and organizational help of the late S. N. Muromtsev are noted. Ye. V. Ksandrov A. M. Kudryavtsev (Moscow Studio of Scientific and Popular Films), and N. N. Solov'yev (IEM AMN SSSR) took part in assembling the instrument." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 25Nov63 ENCL: 00 SUB CODE: OP, LS

NO REF SOV: 009 OTHER: 000

Card 2/2

ACCESSION NR: AP4020938 S/0051/64/016/002/0329/0334

AUTHOR: Butslov,M.M; Plakhov,A.G.; Shapkin,V.V.; Yashin,N.M.

TITLE: Electron-optical recording of the radiation from weakly luminous pulse-discharge plasma

SOURCE: Optika i spektroskopiya, v.16, no.2, 1964, 329-334

TOPIC TAGS: plasma, plasma diagnostics, plasma spectroscopy, time-resolved study, plasma intensity distribution, line contour, faint plasma, weak plasma, helium plasma, helium(I), image intensifier, image converter, image translator, light amplifier

ABSTRACT: Conventional procedures for spectroscopic observation and diagnosis of weakly luminous short-lived (pulse-discharge) plasmas have a number of obvious shortcomings; even when employing fast photographic plates or sensitive photomultipliers it is generally necessary to record the radiation from several hundred discharges, in the course of which the conditions may change. Accordingly, recently several investigators have turned to the use of electron-optical image intensifiers (image converter tubes) with light amplification (V.F.Bolotin,Ye.K.Zavoysky, M.N. Oganov,G.Ye.Smolkin and A.R.Striganov, Izv.AN SSSR,Ser.fiz.27,986,1963; I.F.Bala-

Card 1/3

ACC.NR: AP4020938

shov, M.P.Vanyukov, V.R.Muratov and Ye.V.Nilov,Opt.i.spektr.9,790,1960; Ibid.10, 540,1961). In the present paper there is described a procedure for recording the radiation from weakly luminous pulse-discharge plasmas, involving the use of an electron-optical image converter with a controlled PIM-3 input stage (M.M.Butslov, Usp.nauchn.fotografii,6,76,1959) and five light amplification stages. The electron image in the amplifying stages is focused by means of magnetic coils, similar to coils used in electron microscopes. The image scan in the input stage is realized by saw-toothed oscillators capable of providing 0.5, 1.5, 3, 6 or 12 millisec durations. The input stage sweep is driven and operates for the period of the scan. The sweep length on the screen of the converter is 30 mm. The image converter was tested in conjunction with a plasma device with helical fields. For spectroscopic measurements the tube was coupled to an ISP-51 spectrograph. Several time-resolved spectrograms of helium plasma are reproduced; in one figure a time-resolved section of the helium spectrum is compared with the spectrum photographed directly with an exposure of 200 pulse discharges. The image converter was also coupled to a Fabry-Perot interferometer for the purpose of obtaining time-resolved studies of individual line contours. This setup is diagramed. With the aid of the electron-optical image intensifier one can also obtain information on the spatial distribution in terms of selected monochromatic radiation in weakly luminous plasmas; this is rea-

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ACC.NR: AP4020938

lized by the introduction of another pair of deflecting plates. Orig.art.has: 5 figures.

ASSOCIATION: none

SUBMITTED: 24May63 DATE ACQ: 02Apr64 ENCL: 00

SUB CODE: PH,SD NR REF SOV: 007 OTHER: 000

Card 3/3

BUTSLOV, M.M.; KOMAROV, V.I.; [illegible]

Isotropic discharge chamber for recording the tracks of relativistic charged particles. Zhur.eksp.i teor.fiz. 46 no.6:2245-2247 Je '64.

1. Ob"yedinennyy institut yadernykh issledovaniy.
(MIRA 17:10)

L 11062-66 EWT(1)/EWA(h)

ACC NR: AT6001387 SOURCE CODE: UR/3180/64/009/000/0072/0075

AUTHOR: Butslov, M. M.; Komel'kov, V. S.; Nesterikhin, Yu. Ye.

ORG: none

TITLE: Electron-optical instrument for studying changes in the half-width and intensity of spectral lines with time

SOURCE: AN SSSR. Komissiya po nauchnoy fotografii i kinematografii. Uspekhi nauchnoy fotografii, v. 9, 1964. Vysokoskorostnaya fotografiya i kinematografiya (High-speed photography and cinematography), 72-75 and insert facing page 80

TOPIC TAGS: image converter, spectral line

ABSTRACT: The article describes the design and testing of a dual converter, in which the recording of the glow intensity and dimensions of the image is based on the oscillograms of the input current of the photomultiplier. The test results confirm the principle and design of the instrument and indicate that an instrument with better parameters can be constructed. The tested instrument can be used for recording processes lasting 500-1000 μ sec. To improve the resolving time, it is necessary to increase the amplification factor of the instrument by two orders of magnitude and to use a fast multiplier with a current linearity up to 50-100 ma and a time resolution of 1-5 × 10^{-8} sec. To increase the space resolution, the resolving power of the image

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converter should be increased to 40-50 lines/mm, and the slit should be decreased to 0.03-0.02 mm. The authors express their deep appreciation to S. L. Mandel'shtam and G. G. Dolgov for useful discussion and assistance. Orig. art. has: 10 figures.

SUB CODE: 14,17/ SUBM DATE: 00/ ORIG REF: 000/ OTH REF: 000

Card 2/2

ACC NR: AP7001957 SOURCE CODE: UR/0120/66/000/006/0167/0168

AUTHOR: Butslov, M. M.; Korn, M. Ya.; Solov'yev, N. N.; Yaramyshev, G. S.

ORG: Institute of Epidemiology and Microbiology, AMN SSSR (Institut epidemiologii i mikrobiologii AMN SSSR)

TITLE: Outfit for color microphotograph by means of an electron-optical image-brightness intensifier

SOURCE: Pribory i tekhnika eksperimenta, no. 6, 1966, 167-168

TOPIC TAGS: microphotography, image intensifier

ABSTRACT: An outfit is briefly outlined which consists of a Soviet-made ML-2 luminescent microscope, an electron-optical light intensifier, and a "Konvas" movie camera; the outfit is intended for studying biological objects. By means of sequential alternate-frame dichroic filtering, the color microphotographing (stills and moving) of biological objects from the intensifier screen is performed. The light filters are changed in synchronism with the frames. The outfit permitted cutting down the exposure time by 2--3 orders of magnitude and permitted centraffer microfilming of live objects on black-and-white films. Orig. art. has: 3 figures.

SUB CODE: 09, 14 / SUBM DATE: 15Mar66 / ORIG REF: 003

Card 1/1 UDC: 778.142:778.6:578.08

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000307810007-5"

BUTSLOV, M.M.; KOMBL'KOV, V.S.; MEYTER KHIN, Yu.Ye.

Electron optical system for studying the time rate of changes in the half-width and intensity of spectral lines. Usp.nauch.fot. 9:72-75 '64. (MIRA 18:11)

BUTSURA, V. V.

"The Post-Pleistocene Age of the East Carpathians," Dokl. AN SSSR, 53, No.6, 1946

L 43778-66 EWT(d)/EWT(m)/EWP(c)/EWP(v)/EWP(k)/EWP(h)/EWP(l)/EWA/EWP(t)

ACC NR: AR6022161 IJP(c) JD/JG SOURCE CODE: UR/0137/66/000/003/G019/G019

AUTHOR: Chernyak, A. S.; Butsuyev, A. A. 48 B

ORG: none

TITLE: Large-scale operation and pilot-plant tests 14 of the sulfate-peroxide method for processing pyrochlore products

SOURCE: Ref. zh. Metallurgiya, Abs. 3G146

REF SOURCE: Nauchn. tr. Irkutskiy n.-i. in-t redk. met., vyp. 12, 1965, 294-307

TOPIC TAGS: niobium, ~~niobium separation~~ CHEMICAL SEPARATION, pyrochlore product, MINERAL, 27 27

ABSTRACT: Production and pilot-plant tests were made with the sulfate-peroxide process in separating Nb 41 from pyrochlore products. The technological parameters were specified, and the results of laboratory tests were verified. Economic calculations were made for large-scale operation to demonstrate that the method is usable

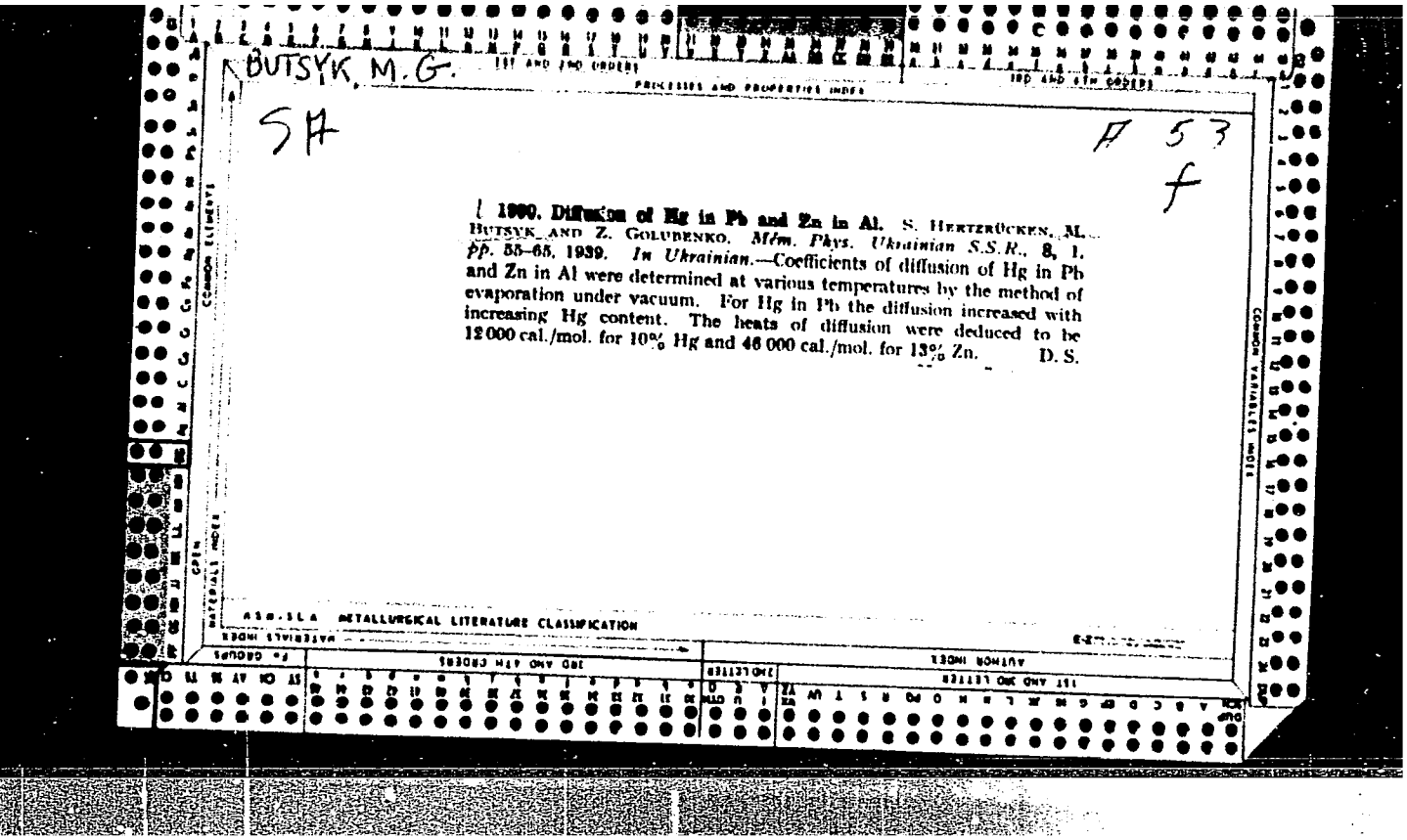
Card 1/2 UDC: 669.293.09

L 43778-66
ACC NR: AR6022161 O

for a parent pyrochlore product with the Nb_2O_5 content exceeding 4—5%. F. Svodtseva. [Translation of abstract] [KP]

SUB CODE: 11/

LS
Card 2/2



BUTSYK, M.G.

SA

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f

1 1990. **Diffusion of Hg in Pb and Zn in Al.** S. HERTERÜCKEN, M. BUTSYK AND Z. GOLUBENKO. *Mém. Phys. Ukrainian S.S.R.*, 8, 1, pp. 55–65, 1939. *In Ukrainian.*—Coefficients of diffusion of Hg in Pb and Zn in Al were determined at various temperatures by the method of evaporation under vacuum. For Hg in Pb the diffusion increased with increasing Hg content. The heats of diffusion were deduced to be 12 000 cal./mol. for 10% Hg and 46 000 cal./mol. for 13% Zn. D. S.

A53-51A METALLURGICAL LITERATURE CLASSIFICATION

BUTSYK, M. G.

GERTSRIKEN, S.D.; BUTSYK, M.G.

Investigation of cadmium diffusion in liquid-state lead-cadmium and bismuth-cadmium alloys. Sbor. nauch. rab. Lab. metallofiz. no.1:159-166 '48. (MLRA 8:9)
(Lead-cadmium alloys) (Bismuth-cadmium alloys)

BUTSYK, M.G.

GERTSRIKEN,S.D.; BUTSYK,M.G.; KARAL'NIK,S.M.

Investigation of the diffusion of mercury in liquid-state lead-mercury alloys. Sbor. nauch. rab. Lab. metallofiz. no.1:172-174 '48. (MIRA 8:9)
(Lead-mercury alloys)

BUTSYK, M. [illegible]

PA 163T100

USSR/Physics - Alloy Systems
Activation

Apr 50

"Investigation Into the Diffusion of Zinc in Silver-Zinc Alloys With Admixtures," M. Butsyk, S. Gertsriken, Kiev Lab of Metallophy, Ukrainian Affiliate, Acad Sci USSR

"Zhur Tekh Fiz" Vol XX, No 4, pp 428-430

Determines coefficients of diffusion, activation energy E_a, and entropy of activation ΔS for zinc and the alloys: Ag-Zn, Ag-Zn-Au, Ag-Zn-Ga, Ag-Zn-Sn, Ag-Zn-Sb, Ag-Zn-Al, Ag-Zn-In. Shows that variations in activation energy ΔE_a and entropy of activation

163T100

USSR/Physics - Alloy Systems (Contd)

Apr 50

$\delta(\Delta S)$ are linear functions of valence of 3d element ("admixture"). For constant valency of 3d element, $\delta(\Delta S)$ is a linear function of its atomic number. Submitted 5 Jun 49.

163T100

BUTSIK, M.G., starshiy nauchnyy sotrudnik; OVOSHCHNIKOV, M.S. laureat Stalinskoy premii.

Impulse roentgenography in early childhood. Pediatriia, no.5:68-70 S-O '55. (MLRA 9:2)

1. Iz Kiyevskogo rentgeno-radiologicheskogo instituta (dir.-prof. I.T. Shevchenko)
(ROENTGENOGRAPHY,
impuls roentgenography in inf.)

BUTUZOVA, K., strakhovoy delegat, tokar', udarnik kommunisticheskogo truda (Kalinin); KURAKIN, M., strakhovoy delegat, strogal'shchik (Kalinin)

What one can't do, all together master. Okhr.truda i sots. strakh. 5 no.10:20-21 O '62. (MIRA 15:11)
(Railroads--Cars--Construction)
(Kalinin--Industrial hygiene)

BUTUZOVA, K.N.

Eliminate shortcomings in planning Moscow's housing and public building construction. Gor.khoz.Mosk. 28 no.11:4-8 N '54. (MIRA 8:1)

1. Zaveduyushchiy gorodskogo khozyaystva MGK KPSS.
(Moscow--Building)

BUTUZOVA, K. N.

Exhibition of the achievement of Soviet urban development. Stroi. i arkhit. Mosk. 9 no.6:2-3 Je '60. (MIRA 13:6)

1. Zamestitel' zaveduyushchego otdelom stroitel'stva TSentral'rogo Komiteta Kommunisticheskoy partii Sovetskogo Soyuza.

(Moscow--Building--Exhibitions)

KADEN, M.M.; BUTUZOVA, L.P.

Effect of antibiotic therapy on typhoid and paratyphoid pathogens.
Antibiotiki 5 no. 5:77-79 S-O '60. (MIRA 13:10)

1. Moskovskiy institut vaktsin i syvorotok imeni I.I. Mechnikova.
(SALMONELLA) (ANTIBIOTICS)

KADEN, M.M.; TIMEN, Ya.Ye.; MOROZOVA, M.M.; SHIGANOVA, V.L.; BUTUZOVA, L.P.

Effect of antibiotic therapy on the clinical course and immunological reactivity of the organism of patients with typhoid and paratyphoid fevers. Antibiotiki 6 no.1:50-54 Ja '61. (MIRA 14:5)

1. Moskovskiy nauchno-issledovatel'skiy institut vaktsin i syvorotok imeni I.I.Mechnikova i 2-ya klinicheskaya gorodskaya infektsionnaya bol'nitsa.

(CHLOROMYCETIN) (TYPHOID FEVER) (PARATYPHOID FEVERS)

BABADZHAN, A.A.; ZHUKOVSKIY, V.M.; BUTUZOVA, L.V.; VETRENKO, Ye.A.

Thermodynamic analysis of germanium behavior in the pyroselection process. TSvet. met. 38 no.4:59-62 Ap '65. (MIRA 18:5)

KUTUZOVA, O.V.

Content of ash elements in various parts of pine and spruce. Bot. zhur. 49 no.7:1060-1063 Jl '64 (MIRA 17:8)

1. Tsentral'nyy muzey pochvovedeniya imeni Dokuchayeva, Leningrad.

BUTUZOVA, O.V.; CHEKALOVA, M.I.

Exposition of agricultural zoning and land reclamation in various regions of the U.S.S.R. Sbor. rab. TSentr. muz. pochv. no.2:11-26 '57. (MLRA 10:8)

(Agriculture)

BUTUZOVA, O. V.

Data on studying soils of the Khanka Plain. Sbor. rab. TSentr. muz. pochv. no.3:124-155 '60. (MIRA 13:9)
(Khanka Plain--Soils)

BUTUZOVA, O.V.

Characteristics of some soil types in Pskov Province.
Pochvovedenie no.7:87-95 '60. (MIRA 13:7)

1. TSentral'nyy muzey pochvovedeniya Akademii nauk SSSR.
(Pskov Province--Soils)

BUTUZOVA, O.

Effect of trees on the microrelief and complexity of soils. Bot. zhur. 45 no.5:707-709 My '60. (MIRA 13:7)

1. TSentral'nyy muzey pochvovedeniya Akademii nauk SSSR, Leningrad.
(Forest influences)